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Abridged Announcement

UNIVERSITY OF MICHIGAN
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Thirty-Seventh

Summer Session

Abridged Announcement

1930

Campus Edition

THE LIBRARY OF THE
MAR 31 1931
UNIVERSITY OF ILLINOIS.

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SUMMER SESSION CALENDAR

1930

June	20-21-23.	Registration in the Law School.
June	24.	Work begins in the Law School, and at the Camp for Geology and Geography.
June	24-28.	Session of the Alumni University.
June	27-30.	Registration in all other Schools and Colleges.
June	30.	Work begins in all other Schools and Colleges, and at the Biological Station.
July	7.	The series of four weeks courses in the School of Education begins.
Aug.	1.	The series of four weeks courses in the School of Education ends.
Aug.	2.	Session ends at the Camp for Geology and Geography.
Aug.	8.	Work closes in the Medical School (six weeks courses), in Hygiene and Public Health, and in Athletic Coaching.
Aug.	22.	Session ends in the Colleges of Literature, Science, and the Arts, of Engineering and Architecture, and of Pharmacy, in the Medical School (eight weeks courses), School of Dentistry, School of Education, School of Business Administration, School of Music, and the Graduate School at the Forestry and Conservation Camp, at Camp Davis, and at the Biological Station.
Sept.	4.	Session ends in the Law School.

The Complete Announcement will be ready for distribution about March 15.

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SUMMER SESSION, 1930

GENERAL INFORMATION

Organization and Extent of Instruction.— The following Schools and Colleges are in operation during the Summer Session: The College of Literature, Science, and the Arts, the Colleges of Engineering and Architecture, the Medical School, the Law School, the College of Pharmacy, the School of Education, the School of Business Administration, the School of Forestry and Conservation, the School of Music, and the Graduate School. The School of Dentistry offers those parts of the regular curriculum in dentistry which are taught in the College of Literature, Science, and the Arts and in the Medical School, consisting of courses in chemistry, physics, and anatomy. Courses are given in hygiene and public health, and in athletic coaching and administration. A Biological Station is maintained during the summer in the northern part of the State of Michigan. Camp Davis is located near Jackson, Wyoming. Intensive field courses in geology and geography are conducted in the vicinity of Mill Springs, Kentucky. The School of Forestry and Conservation maintains a summer camp in the Upper Peninsula of Michigan, which provides fundamental field courses for students in forestry.

The session of the Medical School is six weeks in length—excepting for anatomy, physiological chemistry, otolaryngology, and physiology, in which subjects the work is continued for eight weeks. In the Law School the session is ten weeks, divided into two periods of five weeks each. All of the other Schools and Colleges are in session for a period of eight weeks.

To meet the needs of teachers and educational administrators who cannot attend the full session, a number of special shorter courses (four weeks in length) are offered in the School of Education, from July 7 to August 1.

Character of Work.—The work of the Summer Session is equivalent in method, character, and credit value to that of the regular year. The teaching staff, numbering more than four hundred, is selected almost exclusively from the regular faculties. In many respects the advantages offered during the Summer Session are superior to those enjoyed at any other time.

Credit and Credit Certificates.— In the Colleges and Schools giving instruction for eight weeks, the normal amount of credit which a student may earn is eight hours, which is one-half of that

which may be earned during one semester. In the other Schools, a proportionate amount of credit may be earned. Students not matriculated in the University will, upon request, receive certificates of attendance and of work satisfactorily performed.

Graduate Courses.—Graduates of colleges and universities of recognized standing may enroll for the higher degrees. All such applicants for admission should submit their credentials to the Dean of the Graduate School, from whom further information may be obtained.

Special Privileges to Doctors of Philosophy and Science.—The privilege of attending seminars and of carrying on research in the laboratories and libraries during the Summer Session will be extended by the President of the University on recommendation of a chairman of a department, to doctors of philosophy or of science in this or other universities. There will be no charge except for laboratory supplies. Those desiring to avail themselves of this privilege should correspond with the President before the opening of the Summer Session.

Alumni University.— An institute for graduates of the University, conducted by the office of Alumni Relations. Lecture courses by ten members of the faculty representing different fields. Five days following Commencement, June 24 to 28. Fee, $10. For information, address Wilfred B. Shaw, Director.

The Libraries.— The University Libraries contain over 718,425 volumes, and regularly receive 4,728 periodicals and newspapers. The Library Building is most modern. The Library will be open daily, except Sundays, from 7:45 A.M. to 10:00 P.M.

Lectures, Concerts, and Plays.— Public lectures are given almost every afternoon at five. These lectures are of greatly varied types, including lectures upon history, science, literature, the professions, politics both national and international, travels, industries, and various other important subjects. Special concerts are given weekly, chiefly by the Faculty of the School of Music. A series of entertaining and significant plays is also presented.

Excursions.—Trips will be conducted to the great automobile and airplane plants, important industrial buildings, libraries, the Art Institute, etc. in Detroit; to the Michigan State Prison in Jackson; and the Automobile Proving Ground at Milford. There are also two longer excursions, (a) to Niagara Falls and (b) to Put-in-Bay, Lake Erie.

University Health Service.— In order to conserve the health of the students and to provide that those who become ill may

receive proper medical attention, a staff of physicians is maintained to give advice, dispense medicine, and make examinations at the office of the University Health Service, without charge. Physicians will be in attendance also at the various camps.

The Michigan Union.— The Union serves as a social and recreational center for faculty, alumni, former students, and resident students of the University. All men students in the Summer Session are members of the Union.

The Women's League.— The New League Building aims to unify and enrich women's activities, both academic and social. All women students of the Summer Session are members of the Women's League. The Lydia Mendelssohn Theatre is located in this building.

Housing for Women.— All women students not registered in the Graduate School are required to live in residences approved in the office of the Advisers of Women. Three of the University halls of residence for women will be open. Students desiring to live in one of the halls should correspond with its director. Mrs. Florence Tousey is the Director of Helen Newberry Residence, Miss Mary Lytle of Betsy Barbour House, Miss Edith Barnard of Alumnae House. A list of residences other than dormitories will be mailed from the Advisers' Office upon request.

Fees.—Fees will be required of those attending as visitors as well as of those who wish to do regular work and take the examinations. Summer Session fees are as follows:

College of Literature, Science, and the Arts, Colleges of Engineering and Architecture, College of Pharmacy, School of Business Administration, School of Education, and School of Music, $33.00.

Medical School: laboratory and demonstration courses, $33.00; clinical courses, $38.00.

Law School, $40.50.

Graduate School: matriculates, $33.00; non-matriculates, $38.00.

Public Health Nursing, $33.00; Week-end Public Health Institutes, $3.00 for each or any part of the six institutes.

School of Education: four weeks courses, $20.00; Athletic Coaching, $25.50.

Biological Station, Camp Davis, Field Courses in Geology and Geography, Forestry and Conservation Camp: tuition, $31.00 plus camp fees of $10.00 or $12.00.

These fees apply regardless of the number of courses taken. The above include laboratory fees, excepting that a cash deposit is required to cover the cost of material used and unusual breakage in the laboratories of Chemistry, Hygiene, and Bacteriology.

Two dollars will be refunded to all students registered for study in Ann Arbor during the Summer Session who are life members of the Michigan Union or the Michigan League.

Cost of Living.—Good board with comfortable rooms may be secured at moderate prices, as follows: single rooms, $3.00 to $4.50 per week; double rooms or suites for two persons, $3.00 to $4.00 per person; board, from $6.00 to $8.00 per week.

Summer Employment.— Men students who desire to secure employment during the Summer Session are requested to communicate directly with Joseph A. Bursley, Dean of Students. Women students will communicate with the office of the Advisers of Women.

Admission.—In general, courses are open to all persons qualified to pursue them. Students from other colleges and universities are required to present a statement from an administrative officer showing that they are in good standing in the institution in which they are regularly enrolled. Students of this University who wish to transfer from one School or College to another during the Summer Session, and students who have at any time been dismissed from any School or College of this University will not be allowed to enroll without the consent of the administrative officers concerned.

Registration.—Students are urged to arrive in Ann Arbor not later than June 28, in order to complete their registration before the opening of the Session on June 30, except in the Law School, where registration should begin as early as June 20.

Automobile Regulations.— The University applies certain restrictions to the use of automobiles by its students. The restrictions do not apply to the following students of the Summer Session pursuing instruction in Ann Arbor:

1. Those who in the academic year are engaged in professional pursuits, as, for example, teachers, lawyers, physicians, dentists, nurses.
2. Those attending the Public Health Institutes.

In special cases the Dean of Students may waive the restrictions for students not in the above groups.

Students at Camp Davis, the Biological Station, the Camp for Forestry and Conservation, and the Station for Geology and Geography are subject to the automobile regulations of those units.

Location and Railroad Connections.— The city of Ann Arbor, with a population of 30,000, is delightfully located in southeastern Michigan, thirty-seven miles west of Detroit. It is easily reached by the Michigan Central and Ann Arbor Railroads, or by through and local bus lines.

SUMMARY OF COURSES

Each course announced below carries the number and the name of the course, the name of the instructor, and the number of hours credit. When credit hours are not indicated, arrangement is to be made with the instructor. If minor changes are necessary, they will appear in the Complete Announcement to be issued about March 15. A full description of each course will be given in the Complete Announcement, which may be obtained from the Secretary of the Summer Session, Ann Arbor, Michigan.

GRADUATE SCHOOL, AND COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

The Summer Session in the Graduate School and the College of Literature, Science, and the Arts extends from June 30 to August 22. Graduate and undergraduate courses offered by the various Departments of the College of Literature, Science, and the Arts, are given below. Graduate courses are also listed in the other units of the Summer Session: see School of Education, Medical School, College of Pharmacy, School of Business Administration, and School of Music.

In general, courses numbered from 1 to 100 are elementary, those below 30 being intended particularly for freshmen. Courses numbered from 101 to 200 are advanced, open to undergraduates and graduates. Courses with numbers above 200 are primarily for graduates. The courses in the Schools of Education, of Business Administration, and of Music, are similarly numbered.

Aeronautics

See page 19.

Astronomy

31*s*. Modern Astronomy. The Solar System. MAXWELL, MCLAUGHLIN. (2)
32*s*. Modern Astronomy. The Stars and Nebulae. RUFUS. (2)
33. Elementary Observational Astronomy. LOSH, WILLIAMS. (1)
101*s*. Practical Astronomy. MAXWELL. (2)
103. History of Astronomy. RUFUS. (2)
105. Variable Stars. MCLAUGHLIN. (2)
151. Solar Physics. RUFUS. (2)
152*s*. Stellar Spectroscopy. MCLAUGHLIN. (2)
207. Research.

Botany

1. Elements of Botany. TUPPER. (4)
32*s*. Systematic Botany of Field Studies. WEHMEYER. (2)

34. Plant Physiology. GUSTAFSON. (4)
158. Classification and Morphology of the Green Cryptogams. WEHMEYER. (2)
163. Advanced Plant Physiology. GUSTAFSON. (2 or more)
203. Plant Cytology. DAVIS, WEST. (4)
205*s*. Genetics. DAVIS. (2)
253. Research in Plant Cytology and Genetics. DAVIS.
269. Research in Plant Physiology. GUSTAFSON.
For courses at the Biological Station, see page 32.

Chemistry

3. General and Inorganic Chemistry. LICHTY. (4)
6. General and Inorganic Chemistry. HODGES. (4)
15. Qualitative Analysis. CARNEY. (4)
17. Qualitative Analysis. MCALPINE. (5)
34. Inorganic Preparations. LICHTY. (2 to 4)
41. Elementary Theoretical and Physical Chemistry. FERGUSON. (3)
43. Physical-Chemical Measurements. CASE. (2 to 4)
57. Quantitative Analysis. MELOCHE. (5)
63. Organic Chemistry. SCHOEPFLE. (4)
65. Organic Preparations. BACHMANN. (2 to 4)
69. Organic Chemistry. HALFORD. (5)
105. History of Chemistry. and Development of Chemical Theory from Remote Times to the Present. SMEATON. (2)
111. Electrochemistry. FERGUSON. (2)
113. Electrochemistry Laboratory. FERGUSON. (2)
125. Colloid Chemistry. BARTELL. (2)
127. Laboratory Work in Colloid Chemistry. BARTELL. (2)
131. Advanced Physico-Chemical Measurements. FERGUSON, CASE. (2 to 4)
133. Elementary Thermodynamics. HODGES. (2)
145. Advanced Quantitative Analysis. WILLARD. (4 or 5)
147. Special Problems in Quantitative Analysis. WILLARD.
148. Gas Analysis. MELOCHE. (2)
163. Organic Synthesis and Ultimate Analysis. SCHOEPFLE. (2 to 4)
167. Advanced Organic Chemistry. BACHMANN. (2)
203. Laboratory Research in Inorganic Chemistry. HODGES.
223. Laboratory Research in Physical Chemistry. BARTELL, FERGUSON, HODGES.
225. Seminary in Colloid Chemistry. BARTELL.
227. Research Problems in Colloid Chemistry. BARTELL.
240. Seminary in Analytical Chemistry. WILLARD. (1)
242. Physico-Chemical Methods in Quantitative Analysis. WILLARD. (2)

251. Original Investigation in Analytical Chemistry. WILLARD, MELOCHE.
265. Research in Organic Chemistry. SCHOEPFLE.
For courses in Chemical Engineering, see page 19.

Classical Archaeology

121. Introduction to Classical Archaeology. COUCH. (2)
124. Roman Life as Illustrated by Works of Art and Objects of Common Use. COUCH. (2)

Drawing

See Mechanism and Engineering Drawing, page 21; also, Architecture (Drawing and Painting), page 19.

Economics

51*s*. Principles of Economics, I. WATKINS. (2)
52*s*. Principles of Economics, II. WATKINS. (2)
101*s*. Money and Credit. WATKINS. (4)
121*s*. Labor Problems and Trade Unionism. PETERSON. (2)
130*s*. Transportation Economics and Problems. PETERSON. (2)
131*s*. Corporations and Trusts. CAVERLY. (2)
134*s*. Public Utilities. CAVERLY. (2)
153*s*. Introductory Economics for Teachers. PETERSON. (2)
171*s*. and 172*s*. Principles of Accounting, I and II. MASON. (4)
174*s*. Accounting for Commercial Teachers. MASON. (2)
181*s*. Public Finance and Taxation. CAVERLY. (2)
197*s*. Programs of Social-Economic Reform. ELLIS. (2)

Education

See pages 25-29.

English

1. Theme Writing. WALTON. (3)
2. Oral Exposition. WALTON. (1)
28. American Prose Literature. WALTON. (2)

The above courses are especially designed for students in the Colleges of Engineering and Architecture.

31*s*. Introduction to English Literature. MUESCHKE. (2)
32*s*. Shakespeare. CASADY. (2)
45*s*. American Literature. CASADY. (2)
103*s*. Old English. HILL. (2)
105*s*. Chaucer. HILL. (2)
107*s*. Introduction to the English Language. HILL. (2)
111*s*. Milton. HUMPHREYS. (2)
121*s*. The Age of Wordsworth. GINGERICH. (2)
143*s*. Contemporary Drama. WOODBRIDGE. (2)
148. The English Bible, Its Literary Aspects and Influence. HUMPHREYS. (2)

159*s*. Shakespeare's Comedies. MUESCHKE. (2)
164*s*. English Drama from Shakespeare to the Closing of the Theatres. TILLEY. (2)
168. English Literature of the Renaissance. RICE. (2)
177*s*. English Literature from 1660 to 1730. ASHBY. (2)
181. History of American Literature from the Beginnings to 1800. ELLIS. (2)
204*s*. Advanced Old English. FRIES. (2)
222. Pro-seminary in Elizabethan Drama. Problems in Shakespeare. WOODBRIDGE. (2)
232. Studies in Elizabethan Literature. Problems relating to Spenser and his work. TILLEY. (2)
233. Studies in the Seventeenth Century Comedy of Manners. MUESCHKE. (2)
261. Pro-seminary in the Romantic Poets. GINGERICH. (2)
271. Studies in American Realism. CASADY. (2)
272. Pro-seminary in American Literature. ELLIS. (2)
281. Pro-seminary in the English Literature of the Eighteenth Century. ASHBY. (2)
294*s*. Methods of Research. RICE. (2)
296. The Teaching of English in College. FRIES. (2)

Fine Arts

1*s*. General Introductory Course in Fine Arts. DONALDSON. (2)
18*s*. Sculpture as a Fine Art. DONALDSON. (2)
35*s*. North Italian Renaissance Painting. ADAMS. (2)

French

See page 17.

General Linguistics

107*s*. Psychology of Language and Speech. MEADER, PILLSBURY. (2)
122. General Phonetics (Experimental and Practical). MEADER, MUYSKENS. (2)
155*s*. English Phonetics. MUYSKENS, MILLER. (2)
203*s*. Seminary in Phonetics. MUYSKENS, MILLER. (2)

Geography

(a) *At Ann Arbor*

1*s*. Elements of Geography. PROPHET. (2)
33*s*. Geography of Commercial Production. PROPHET. (2)
111*s*. Geography of South America. JAMES. (2)
140*s*. Climates of the World. JAMES. (2)
200*s*. Research and Special Work in Regional Geography. JAMES, PROPHET.

(b) *Field Course in Michigan (Eight Weeks)*

203. Special Graduate Field Course in Geography. McMURRY. (8)

(c) *Field Courses in Kentucky and Tennessee (Six Weeks)*

105*s*. Field Course in Geography. HALL. (8)
205*s*. Advanced Field Course in Geography. HALL. (8)

Geology

(a) *At Ann Arbor*

31*s*. Earth Features and Their Meaning. HOBBS. (2)
32*s*. Historical Geology. HUSSEY. (2)
105*s*. Organic Evolution. HUSSEY. (2)
203. Research and Special Work in Paleontology and Stratigraphy. HUSSEY.
209. Characteristics of Glaciers. HOBBS. (2)

(b) *Field Courses in Kentucky and Tennessee (Six Weeks)*

125. Field Course in Geology. EHLERS. (8)
126. Field Course in Physiography. (8)
202. Research and Special Work in Physiography.
203. Research and Special Work in Paleontology and Stratigraphy. EHLERS.

Germanic Languages and Literatures

1*s*. Beginners' Course. WILLEY, BOCKSTAHLER. (4)
2*s*. Reading of Easy German Stories, with Practice in Speaking and Writing German. VAN DUREN. (2)
31*s*. Modern Prose. VAN DUREN. (2)
32*s*. German Prose and Poetry. BOCKSTAHLER. (2)
35*s*. Scientific German. SCHOLL. (2)
101*s*. Representative Works of Lessing. DIEKHOFF. (2)
121*s*. German Composition. WILLEY. (2)
125*s*. German Conversation. HILDNER. (2)
159. Goethe's *Faust*. WAHR. (2)
213. Historical German Grammar (Phonology). DIEKHOFF. (2)
217*s*. Seminary in Nietzsche: *Also Sprach Zarathustra*. HILDNER. (2)
239. Seminary in German Fiction of the Nineteenth Century. SCHOLL. (2)
241. Seminary in Contemporary Prose Literature. WAHR. (2)

Greek Language and Literature

(a) *In Greek*

1*s*. Elementary Greek. BLAKE. (2 or 4)
32*s*. Reading of Easy Greek Prose. SCHLESINGER. (2)
154. The *Phaedo* of Plato. COUCH. (2)
201*s*. Seminary in Aeschylus. Critical Study of the *Seven Against Thebes* and the *Prometheus*. SCHLESINGER. (2)

(b) *In English*

121. Introduction to Classical Archaeology. COUCH. (2)
164*s*. The Greek Drama in English Translations. SCHLESINGER. (2)

History

2*s*. History of Rome. BOAK. (2)
3. The General History of Europe, 1648-1815. WHEELER. (4)
35*s*. History of England since 1832. SCOTT. (2)
39*s*. Medieval Europe, from Rome to Feudalism. DUNCALF. (2)
45*s*. The United States during the Civil War and Reconstruction, 1860-1877. HIRSCH. (2)
94*s*. The Far East since 1885. LYBYER. (2)
119*s*. Society and Life in Medieval Times. DUNCALF. (2)
132*s*. Studies in the Development of the British Empire since 1760. SCOTT. (2)
141*s*. The History of Hispanic America. CHAPMAN. (2)
150*s*. History of the American Colonies to 1750. BOND. (2)
241*s*. Seminary in American History. The South. HIRSCH. (2)
243*s*. Seminary in American History. The Beginnings of the Old Northwest to 1815. BOND. (2)
247*s*. Seminary in Modern European History. The Near East since 1914. LYBYER. (2)
260*s*. Topics in Greek and Roman History. BOAK. (2)
281*s*. Seminary in Hispanic American History. CHAPMAN. (2)

Hygiene

See page 28.

Italian

See page 17.

Journalism

101*s*. Elements of Journalism. MAURER. (2)
102*s*. Newspaper Editing. MAURER. (2)
103*s*. The Community Newspaper. MAURER. (2)
151. Written Criticism. BRUMM. (2)
155. Feature Writing. BRUMM. (2)

Landscape Design

101. Introduction to the Study of Landscape Design. TEALDI. (2)
155. History of Landscape Design. TEALDI. (3)

Latin Language and Literature

3*s*. Virgil. Selections from the *Georgics* and *Eclogues* or the *Aeneid,* Books VII to IX. BUTLER. (2)
50. The History of Roman Literature. MEINECKE. (2)

101. Roman Political Institutions. CRITTENDEN. (2)
104. Latin Writing. Advanced Course. MEINECKE. (2)
124. Roman Life as Illustrated by Works of Art and Objects of Common Use. COUCH. (2)
130*s*. The Teaching of Latin in the Secondary Schools. GRINSTEAD. (2)
135*s*. Medieval Latin. MEINECKE. (2)
146. The Histories of Tacitus. DUNLAP. (2)
156*s*. Teachers' Course: Virgil. DUNLAP. (2)
157. Teachers' Course: Cicero. CRITTENDEN. (2)
205. Introduction to Latin Palaeography. SANDERS. (2)
215. Laboratory Course in Roman Antiquities. BUTLER. (2)
216. Advanced Laboratory Course in Roman Antiquities. BUTLER. (2)
219. Seminary in Martial. Studies in Roman Satire. SANDERS. (2)
220. Direction of Thesis Work. DUNLAP.

Library Science

Courses 103, 109, 111, 115, 119, 126, and 128, are open only to students with ninety hours credit in the University of Michigan, or an equivalent secured elsewhere, with 120 honor points. A reading knowledge of French and German is also a prerequisite.

The advanced courses in Library Science, 202, 230*s*, and 232*s*, presuppose a bachelor's degree from an accredited college or university, a reading knowledge of French and German, or approved equivalents, and one year of study in Library Science either at the University of Michigan or in an accredited library school. Some previous study of Latin (at least two units of Latin in the high school) is strongly recommended.

103. Cataloging and Classification. MANN. (4)
109. Book Selection and Ordering for Libraries. COOPER. (3)
111. Library Administration. COOPER. (2)
115. Acquisition, Care, and Use of Ephemeral Material. THOMAS. (2)
119. Reference Work and Bibliography. WEAD. (3)
123*s*. School Library Work for Teacher-Librarians. MCQUILLAN. (4)
126. Special Collections. GOODRICH. (2)
128. The Making of the Book. WEAD. (2)
202. National and Regional Bibliography. EPPENS. (2)
230*s*. Library of Congress Classification. HANSON. (2)
232*s*. Advanced Cataloging Problems. HANSON. (2)

Mathematics

1*s*. College Algebra. MENGE. (2)
2. Plane Analytic Geometry. COE. (4)

3. College Algebra and Analytic Geometry. FISK. (4)
4. Plane and Solid Analytic Geometry. ROUSE. (4)
5. Elementary Algebra. ANNING. (2)
6. Solid Geometry. ROUSE. (2)
8. Trigonometry. CHURCHILL. (2)
33. Calculus, I. POOR. (5)
36. Calculus. RAIFORD. (3)
37. Calculus, II. CHURCHILL. (4)
38. Calculus. FISKE. (3)
39. Differential Equations. (Engineers). HOPKINS. (2)
49. Introduction to the Mathematical Analysis of Statistics, I. NYSWANDER, RAIFORD. (2)
50. Introduction to the Mathematical Analysis of Statistics, II. CARVER. (2)
51*s*. Mathematics of Finance. MENGE. (2)
52*s*. Mathematics of Finance and Insurance. MENGE. (2)
103*s*. Differential Equations. ANNING. (2)
112*s*. Higher Algebra. WILDER. (2)
121*s*. Theory of Probability. NYSWANDER. (2)
122*s*. Finite Differences. NYSWANDER. (2)
131*s*. The Figures of Solid Geometry. BRADSHAW. (2)
135*s*. Projective Geometry. BRADSHAW. (2)
142*s*. Analytic Mechanics. HOPKINS. (2)
147*s*. Vector Analysis. FIELD. (2)
151*s*. Advanced Calculus. FORD. (2)
152*s*. Infinite Series, with Special Reference to Fourier Series. FORD. (2)
158. Calculus of Variations. HILDEBRANDT. (2)
169. Graphical Methods. RUNNING. (2)
170. Empirical Formulas. RUNNING. (2)
171*s*. Mathematical Theory of Statistics. CARVER. (2)
181*s*. The Teaching of Algebra. KARPINSKI. (2)
184. History of Mathematics. KARPINSKI. (2)
194*s*. Integral Equations. COE. (2)
195*s*. Introduction to the Foundations of Mathematics. WILDER. (2)
204*s*. Theory of Functions of a Complex Variable. HILDEBRANDT. (2)
241. Applied Mathematics—Engineering Problems. FIELD. (2)

Mineralogy and Petrography

31. Elements of Mineralogy. PECK, RAMSDELL. (2)
33. Determinative Mineralogy. RAMSDELL. (2)
105. Qualitative Blowpipe Methods. RAMSDELL. (2)
107. Lithology. PECK. (2)
205. Special Work. RAMSDELL, PECK.

Music

See School of Music, page 30.

Philosophy

31*s*. Introduction to Philosophy. SELLARS. (2)
33*s*. Introduction to Logic. LANGFORD. (2)
106*s*. Contemporary Metaphysics. LANGFORD. (2)
129*s*. Introduction to Ethics. DRAKE. (2)
131*s*. Contemporary Moral Problems. DRAKE. (2)
139*s*. Aesthetics. PARKER. (2)
141*s*. Philosophy of Value. PARKER. (2)
190*s*. Philosophy of Religion. SELLARS. (2)

Physical Education

See page 28.

Physics

5. Physics for Admission. CORK.
35. General Physics: Mechanics, Sound, and Heat. RANDALL. (4)
36. General Physics: Electricity and Light. RICH. (4)
37. Problems. RANDALL. (1)
38. Problems. RICH. (1)
39. Laboratory work in Mechanics, Sound, and Heat. CORK. (1)
40. Laboratory Work in Electricity and Light. CORK. (1)
45. General Physics: Mechanics, Sound, and Heat, for Engineers. RANDALL. (5)
46. General Physics: Electricity and Light, for Engineers. RICH. (5)
105. Modern Physics. BARKER. (2)
116. Laboratory Arts. KESSLER. (1)
145. Electrical Measurements. SAWYER. (4)
154. Electrical Measurements. SMITH. (2)
160. Physics of the Stars. ————. (2)
165. Vacuum Tubes in Radio Communication. WILLIAMS. (2)
171. Mechanics. LINDSAY. (2 or 3)
181. Heat. CORK. (2)
183. Laboratory Work in Heat. CORK. (2)
205. Electricity and Magnetism. COLBY. (2)
207. Introduction to Theoretical Physics. ————. (2)
210*s*. Atomic Structure. BARKER. (2)
212. Spectral Series. RANDALL. (2)
218. Statistical Mechanics. ————. (2)
250*s*. X-Rays. LINDSAY. (2)
255. Interpretation of Band Spectra in Terms of Quantum Mechanics. ————. (2)
265*s*. Conduction of Electricity through Gases. ————. (2)
280. Quantum Mechanics. ————. (2)
281. Special Problems. RANDALL, and other members of the staff.
297. Physics Colloquium.
300. Seminaries.

Physiology

See page 23.

Political Science

31*s*. American Government. POLLOCK. (2)
32*s*. American Government. REED. (2)
105*s*. Political Parties and Electoral Problems. POLLOCK. (2)
121*s*. American Constitutional Government. HOLCOMBE. (2)
141*s*. Municipal Government. REED. (2)
161*s*. Public International Law. CRANE. (2)
165*s*. World Politics. CRANE. (2)
182*s*. Principles of Popular Government. HOLCOMBE. (2)

Psychology

31*s*. Elementary Psychology. SCHNIERLA. (2)
33*s*. Experimental Psychology. WILEY. (2)
34*s*. Experimental Psychology. WILEY. (2)
42. Psychology of the Abnormal. PILLSBURY. (2)
101*s*. Comparative Psychology. SHEPARD. (2)
104*s*. Genetic Psychology. WILEY. (2)
107*s*. Psychology of Language and Speech. MEADER, PILLSBURY. (2)
109*s*. Psychology of Advertising. ADAMS. (2)
110*s*. Vocational Psychology. GRIFFITTS. (2)
125*s*. Instinct in Comparative Psychology. SCHNIERLA. (2)
127. Individual and Race Differences. GRIFFITTS. (2)
165*s*. Psychology of Personality. ADAMS. (2)
219*s*. Points of View in Psychology. SHEPARD. (2)
225. Special Work.

Rhetoric

1. Composition and Rhetoric. MORRIS. (3)
2. Composition and Rhetoric. MORRIS, WELLS. (3)
31*s*. Narrative and Descriptive Writing. EVERETT, PETERSON. (2)
32*s*. Expository Writing. EVERETT. (2)
61*s*. Rhetorical Analysis. MORRIS. (2)
64*s*. Special Studies in the Essay. WALTER. (2)
68*s*. Short Story Writing. PETERSON. (2)
101*s*. Studies in the Structure of the Modern Novel. EVERETT. (2)
153*s*. Problems of Composition, II. COWDEN. (2)
156*s*. Senior Exposition. PETERSON. (2)
165*s*. Literary Criticism from the Pleiade to the Lyrical Ballads. THORPE. (2)
169*s*. Contemporary Prose. WALTER. (2)
180*s*. Diction and Usage. COWDEN. (2)
190*s*. The Drama, II. ————. (2)
209*s*. Ancient Rhetoric and Poetic. ————. (2)

Romance Languages and Literatures

(a) *French*

1. Beginners' Course. SEWELL. (4)
1*s*. Beginners' Course. MCGUIRE. (6)
2. French of the Second Semester. EVANS. (4)
31. Second-Year French. BEMENT. (4)
32. French of the Fourth Semester. KNUDSON. (4)
113*s*. Oral Drill and Conversation. ROVILLAIN. (2)
114. Conversation. CLOPPET. (2)
153*s*. Advanced Composition and Practical Review of Grammar. CLOPPET. (2)
159*s*. French Pronunciation and Diction. EHRHARD. (2)
160*s*. French Romanticism of the Nineteenth Century, 1800-1850. KNUDSON. (2)
165. French Literature of the Twentieth Century. EHRHARD. (2)
181. French Civilization. THIEME. (2)
183. French Literary Criticism. THIEME. (2)
194*s*. The Literature of the Eighteenth Century. Second Part. ROVILLAIN. (2)
215. Explication de Textes. EHRHARD. (2)

(b) *Italian*

31*s*. Beginners' Course. BENTLEY. (4)

(c) *Spanish*

1. Beginners' Course. MERCADO. (4)
2. Elementary Course. FARRELL. (4)
31. Second Year Spanish. LINCOLN. (4)
101. Advanced Practical Spanish. FARRELL. (2)
113*s*. Spanish Literature of the Nineteenth Century. LINCOLN. (2)
121*s*. Spanish Life. Conducted in Spanish. MERCADO. (2)

Graduate Courses: In addition to the above there will be four graduate courses given by Professor Wagner and a visiting professor. Detailed announcement later.

Russian

113*s*. Elementary Russian. MEADER. (2)
121*s*. Russian Literature in English. MEADER. (2)

Semitics

106. The History of Religions. WATERMAN. (2)
109. The Bible. A Survey Course. WATERMAN. (2)

Sociology

51*s*. Principles of Sociology. HOLMES, ANGELL. (2)
111. Rural Sociology. HOLMES. (2)
121. Community Problems. WOOD. (2)
141*s*. Criminology. WOOD. (2)
153. Social Evolution. HOLMES. (2)

154*s*. Modern Social Problems. CARR. (2)
161*s*. The Sociology of Education. ANGELL. (2)
245*s*. Social Psychiatry. DORSEY. (2)
251*s*. Principles of Sociology. Graduate Sections. CARR. (2)

Spanish

See page 17.

Speech

31*s*. The Elements of Speech. RILEY, FLEISCHMAN. (2)
32*s*. Elements of Speech. FLEISCHMAN. (2)
41*s*. Public Speaking. DENSMORE. (2)
43*s*. Interpretative Reading. HOLLISTER. (2)
51*s*. Correction of Speech Disorders. WEST.
53*s*. Dramatic Production. WINDT. (2)
62*s*. Advanced Public Speaking. DENSMORE. (2)
63. Advanced Interpretation. HOLLISTER. (2)
67. Acting. WINDT. (2)
68. Acting. WALLACE. (2)
107*s*. Psychology of Speech. MEADER, PILLSBURY. (2)
115. Theory of Oral Reading. FLEISCHMAN. (2)
118. Advanced Dramatic Production. WALLACE. (2)
122. General Phonetics. MUYSKENS. (2)
124. Stagecraft. WINDT. (2)
133. Teaching and Coaching Debate. DENSMORE. (2)
155*s*. English Phonetics. MUYSKENS, MILLER. (2)
172*s*. Speech Pathology. WEST.
175. Voice Science. MUYSKENS. (3)
190*s*. The Teaching of Speech. O'NEILL. (2)
203. Seminar in Phonetics. MEADER, MUYSKENS. (2)
210. Anatomy and Physiology of the Vocal Organs. STRONG. (4)
212. Seminar in Speech Pathology. WEST.
216. Seminar in Rhetoric and Oratory. O'NEILL. (2)

Zoology

1. Principles of Animal Biology. WOODHEAD. (4)
56. Embryology of Vertebrates. OKKELBERG. (4)
63. Elements of Genetics. SHULL. (4)
152. Natural History of Vertebrates. HANN. (4)
172. Museum Methods. RUTHVEN, THOMPSON. (2)
231. Advanced Zoological Studies.
261. Investigations in Ichthyology. HUBBS.
271. Investigations in Embryology and Cytology. OKKELBERG.
281. Investigations in the Genetics of Invertebrates. SHULL.
283. Investigations in Vertebrate Genetics. FELDMAN.
295. Investigations in Mammalogy. DICE.

For courses at the Biological Station, see page 32.

COLLEGES OF ENGINEERING AND ARCHITECTURE

The Summer Session of the Colleges of Engineering and Architecture extends from June 30 to August 22. The courses are designed for students of Engineering and Architecture and for practising engineers and teachers. The laboratory facilities are unusual for advanced technical instruction.

Aeronautical Engineering

1. Aeronautics. PAWLOWSKI. (2)
2. Aeronautics. PAWLOWSKI. (2)

Architecture

(a) *Architectural Design*

1. Elements of Architecture. BENNETT. (3)
4. Study of the Orders. BENNETT. (3)
5 and 6. Elementary Architectural Design. BENNETT. (4)
7 and 8. Intermediate Architectural Design. ROUSSEAU.
9 and 10. Advanced Architectural Design. ROUSSEAU.

(b) *Free-Hand Drawing and Painting*

B. Outdoor Drawing and Painting. SLUSSER. (2)

Chemical Engineering

1. Engineering Materials. BRIER, MCCABE. (3)
2. Fuels and Furnaces. WOOD. (3)
3. Structure and Properties of Metals. WOOD. (3)
5. Chemical Technology of the Organic Industries. BRIER. (2)
9. Unit Processes. MCCABE. (3)
10. Gas and Fuel Analysis. WOOD. (1)
12. Special Problems. (3 to 8)
13. Evaporation, Filtration, and Transportation of Liquids. MCCABE. (2)

41 and 47. Advanced Ferrous and Nonferrous Metallurgy. WOOD. (3 to 8)

43 and 50. Evaporation, Distillation, Crystallization. MCCABE. (3 to 8)

45. Paint, Varnish, and Lacquer. BRIER. (3 to 8)

Chemistry

See page 8.

Civil Engineering

2. Theory of Structures. CISSEL. (3)
7c. Arches. CISSEL. (2)
44. Highway Transport. MORRISON. (2)
45. Highway Traffic Control. MORRISON. (2)

65. Structural Engineering Research. CISSEL.
66. Highway Engineering and Highway Transport Research. MORRISON.

Drawing

See Mechanism and Engineering Drawing, page 21; also Architecture, page 19.

Electrical Engineering

1. Principles of Electricity and Magnetism. ATTWOOD. (4)
2. Direct Current Apparatus and Circuits. ATTWOOD. (4)
2*a*. Direct and Alternating Current Apparatus and Circuits. MOORE. (4)
3. Alternating Current Circuits. CANNON. (4)
4. Alternating Current Machinery. BAILEY, GAULT. (4)
5. Design of Electrical Machinery and Appliances. MOORE. (4)
11. Power Plants, Transmission, and Distribution. LOVELL. (5)
17. Electromechanics. CANNON. (4)
18. Research Work in Electrical Engineering.
25. Advanced Principles of Electricity and Magnetism. ATTWOOD. (3)
26. Heaviside Operators. CANNON. (2)
51. Advanced Problems in Electrical Machine Design. MOORE.

Engineering Mechanics

1. Statics. MENEFEE. (4)
2. Strength and Elasticity of Materials. DODGE. (3)
2*a*. Laboratory Course in Strength and Elasticity of Materials. LIDDICOAT. (1)
3. Dynamics. LIDDICOAT. (2)
4. Hydromechanics. DODGE. (3)
5. Testing Materials. LIDDICOAT. (2)

Note: Information concerning advanced courses in Engineering Mechanics will be given in the Complete Announcement. Those interested in such instruction may address Professor L. A. Hopkins, Secretary of the Colleges of Engineering and Architecture.

English

See page 9.

French

See page 17.

Geography and Geology

See pages 10 and 11.

German

See page 11.

Mathematics

See page 13.

Mechanical Engineering

2. Elements of Machine Design. CALHOON. (3)
3. Steam Engines. HAWLEY. (4)
4. Hydraulic Machinery. SHERZER. (3)
6. Theory of Machine Design. CALHOON. (4)
7. Mechanical Engineering Laboratory, I. WATSON. (2)
8. Mechanical Engineering Laboratory, II. WATSON. (3)

17*s*. Design of Pumping Machinery. SHERZER. (3)

Mechanism and Engineering Drawing

1. Mechanical, Geometrical, and Machine Drawing. FINCH. (3)

1*d*. Instrumental and Free-Hand Drawing. FINCH. (1)

2. Descriptive Geometry. GOULDING. (3)
3. Mechanical, Geometrical, and Machine Drawing, and Free-Hand Sketching. GOULDING. (2)

Military Science and Tactics

Signal Corps, at Fort Sheridan.
Infantry, at Fort Sheridan.
Ordnance, at Aberdeen Proving Ground.

Shop Practice

1. Wood Working. BLITON. (2)
2. Metal Working and Treating. CAMPBELL, TELFER. (2)

2*a*. Advanced Metal Working and Treating. CAMPBELL, TELFER.

3. Foundry. CAMPBELL, GRENNAN. (4)

3*a*. Advanced Foundry.

4. Machine Shop Practice. BOSTON, GWIAZDOWSKI, PARKER. (4)

4*a*. Advanced Machine Shop Practice.

Spanish

See page 17.

Surveying

Camp Davis, located near Jackson, Wyoming, in the valley of the Hoback River, seventy-five miles south of Yellowstone National Park, offers excellent facilities for surveying, in a climate admirably suited to field work. The courses offered there are open only to students who are properly prepared. Application for admission should be made to Director C. T. Johnston, Ann Arbor, Michigan. The 1930 Session is from June 30 to August 22.

At Camp Davis

3. Surveying. JOHNSTON, CAREY, BOUCHARD, MCFARLAN, YOUNG, BLEEKMAN. (8)

At Ann Arbor

4. Surveying. MITCHELL. (2)

MEDICAL SCHOOL

The Summer Session of the Medical School extends from June 30 to August 8, excepting for Anatomy, Physiological Chemistry, Otolaryngology, and Physiology, in which subjects the instruction continues for eight weeks. While students may obtain credit for work done, they cannot thereby shorten their period of residence in the Medical School.

Anatomy

1. Laboratory Work in Human Anatomy. McCotter, Strong.
2. Histology, Embryology, and Anatomy of the Nervous System. Huber, Crosby, Thompson.

2*a*. Lectures and Laboratory Work in Histology and Embryology.

2*b*. Lectures and Laboratory Work in Anatomy of the Nervous System and the Special Senses.

2*c*. Mammalian and Human Embryology. Huber.

3. Laboratory Work in Human Anatomy for Dental Students.
4. Lectures, Recitations, and Laboratory Work in Histology and Embryology for Dental Students. Huber.
5. Regional and Topographic Anatomy. McCotter.
6. Research Work in Histology, Embryology, and Anatomy of the Nervous System. Huber.

Bacteriology

3. Laboratory Work in Bacteriology. Novy, Soule.
4. Vaccines and Serum Reactions. Hadley.

208. Research in Bacteriology. Hadley, Soule.

Dermatology and Syphilology

4. Section Work in Dermatology and Syphilology. Belote.

Internal Medicine

2. Clinical Microscopy. Curtis.
4. Clinical Medicine. Sturgis, Brown, Barker, Field.
5. Junior Medicine. Sturgis, Brown, Barker, Field.
9. The Quantitative Conception of Nutrition. Johnston.

Neurology

3. Senior Section. Waggoner.

Obstetrics and Gynecology

2. Demonstration Course in Obstetrics. Carmichael, Huber.
3. Practical Course in Obstetrics and Gynecology. Pierce, Kretzchmar, Wilkins.

Ophthalmology

1. Junior Demonstration Course. Fralick.
2. Junior Elective Course in Ophthalmology. Fralick.

Otolaryngology

3. Junior Section. Bonham.

Pathology

2. Laboratory Course in Pathology. Weller, Bugher, Gordon.
5. Pathological Technique. Weller, Gordon.

211. Special Pathology of the Infectious Diseases. WELLER. (8)
212. Special Pathology of Neoplasms. WELLER.

Pediatrics

1. Section Work in Pediatrics and Infectious Diseases. COOPERSTOCK.

Pharmacology, Materia Medica, and Therapeutics

2. Pharmacology and Therapeutics. NELSON.
3. Experimental Pharmacology. NELSON, SMITH.
5. Practical Anesthesia. DUNSTONE.

Physical Therapy

3. Technicians' Course.
4. Physical Therapy. PECK.

Physiological Chemistry

1. Physiological Chemistry. Lectures. LEWIS.
2. Laboratory Work in Physiological Chemistry. CALVERY, CHRISTMAN, ECKSTEIN.
209. Advanced Physiological Chemistry. LEWIS, CHRISTMAN, ECKSTEIN.

Physiology

3 and 4. Human Physiology. GESELL, NICHOLSON, BEAN, KRUEGER. (7)
5. Human Physiology. (Laboratory). GESELL, NICHOLSON, BEAN. (3)
201. Demonstration.
211. Advanced Physiology. Special Problems. GESELL.
231. Research. GESELL.

Roentgenology

1. Elementary Course in Roentgenology and Radiotherapy. BARNES, GILLIES.
2. Elementary Course in Roentgen Technique. GILLIES.
3. Film Interpretation and Practical Fluoroscopic Work. HICKEY.
4. Elements of Radiotherapy. BARNES.
105. Advanced Course in Radiotherapy. BARNES.

Surgery

4. Junior Section. (3)
8. Senior Section. (6)

LAW SCHOOL

The Summer Session of the Law School extends from June 24 to September 4, and is divided into two periods of five weeks each so planned as to offer in any two successive summers all the prescribed courses of the first two years of the work leading to a degree. In addition, most of the elective courses will be given every second or third summer in such order as to meet the requirements of those who contemplate taking advantage of the Summer Sessions in working

for the law degree. Full credit toward a degree will be given upon passing a successful examination.

Students who begin the study of Law with the Summer Session may shorten the time required for a degree from three years to two years and three Summer Sessions.

Program of Courses for 1930

First Year Subjects

Criminal Law. SHARTEL. (4). Both terms.
Torts. LEIDY. (4). Both terms.

Second and Third Year Subjects

Bills and Notes. ARANT. (4). Both terms.
Evidence. WICKHEM. (4). Both terms.
Corporations. JAMES. (4). Both terms.
Trusts. CAREY. (4). Both terms.
Equity III. DAWSON. (2). Second term.
Municipal Corporations. STASON. (2). Second term.
Oil and Gas. KULP. (2). First term.
Taxation. ROTTSCHAEFER. (2). Second term.
Trade Restraints. GRISMORE. (2). Second term.
Wills. MECHEM. (2). First term.

The first term begins June 24 and ends July 29.
The second term begins July 29 and ends September 4.

COLLEGE OF PHARMACY

The Summer Session in the College of Pharmacy extends from June 30 to August 22. The courses are planned to meet the needs of (a) students who wish to shorten the time needed to complete the courses leading to the degrees in Pharmacy; (b) students who plan to enter the field of Food and Drug Analysis; (c) graduate students desiring to specialize in Pharmaceutical Chemistry.

Pharmaceutical Chemistry

1. Food Analysis. GLOVER. (3 or 5)
2. Food Analysis. GLOVER. (3 or 5)
3. Pharmacopoeial Testing and Drug Assaying. GLOVER. (4)
4. Chemistry of Synthetic Drugs. BLICKE. (3)
5. Synthesis of Drugs. BLICKE. (2)
7. Research in Synthetic Drugs. BLICKE.

Pharmacy

1. Pharmaceutical and Chemical Calculations. POWERS. (4)
7. Manufacturing Pharmacy. POWERS. (4 or 8)

SCHOOL OF DENTISTRY

The School of Dentistry offers during the Summer Session those parts of the regular curriculum in dentistry which are taught in the College of Literature, Science, and the Arts and in the Medical

School. This is done to allow candidates for the degree of Doctor of Dental Surgery to complete some of their required work which has been omitted because of irregular enrollment, or which for other reasons they have been unable to carry during the academic session.

All students desiring to pursue during the Summer Session courses which are to be recognized by this School should first consult with the Dean of the School of Dentistry.

SCHOOL OF EDUCATION

The Summer Session of the School of Education is eight weeks in length, June 30 to August 22, except as follows: (a) Courses in Athletic Coaching and Administration, which continue for but six weeks; (b) Shorter courses designed for students unable to attend the full session are given for four weeks, July 7 to August 1, and are listed under the several departments.

A large variety of undergraduate and graduate courses is offered, especially adapted to the needs of elementary and high school teachers, supervisors, principals, and superintendents. The regular instructional staff has been augmented by many prominent educators. For explanation of the numbering of courses, see page 7.

History and Principles of Education

A1. The History of Education in the United States. CONGDON. (2)

A102. Contemporary Education in Foreign Lands. (Four weeks.) GRIZZELL. (2)

A125. Philosophy of Education. COURTIS. (2)

A201*s*. The History of Education during the Ancient, Medieval, and Renaissance Periods. WRIGHT. (2)

A206. Seminary in the History of Education in the United States. WRIGHT. (2)

Educational Administration and Supervision

B20. Principles of Teaching—Introduction to Secondary Education. CONGDON. (2)

B105*s*. The Construction of the Elementary School Curriculum. WOODY. (2)

B120. Principles of Teaching in Secondary Schools. Advanced Course. CARROTHERS. (2)

B121. The Junior High School. DAVIS. (2)

B122*s*. The High School Curriculum. HUDELSON. (2)

B124*s*. Administration and Supervision of Secondary Schools. EDMONSON (Section I, Larger high schools); CONGDON (Section II, Smaller high schools). (2)

B131*s*. The Organization and Administration of Extra-Curricular Activities in Junior and Senior High Schools. JOHNSTON. (2)

B151. Supervision of Elementary School Instruction. KYTE. (2)
B156. Supervision of the High School Subjects. CURTIS, THORPE, BYRN, FOX, GRINSTEAD, STEPHENSON. (2)
B189*s*. Current Studies and Current Literature Relating to Rural Education. (Four weeks.) CARR. (2)
B191*s*. Instructional Problems of Colleges and Universities. HUDELSON. (2)
B192*s*. Introduction to Educational Research. KEELER. (2)
B193*s*. Administrative Work for Deans of Girls in High Schools. (Four weeks.) JONES. (2)
B221. Current Studies and Current Literature Relating to Secondary Education. DAVIS. (2)
B225*s*. Constitutional and Legal Basis of Public School Administration. (Four weeks.) EDMONSON. (2)
B227*as*. Research in the Secondary School Curriculum. GRIZZELL. (2)
B228*s*. Research in Secondary School Administration. JOHNSTON. (2)
B249*s*. Principles of School Administration (Town and Consolidated). CARROTHERS. (2)
B250*a*. Principles of School Administration (State). HAAS. (2)
B250*b*. Principles of School Administration (City). HAAS. (2)
B251. Supervision of Elementary School Instruction. KYTE. (2)
B255. Public School Relations. MOEHLMAN. (2)
B257*s*. Public School Finance. MOEHLMAN. (2)
B258*s*. Planning of School Buildings. (Four weeks.) THIESEN. (2)

Educational Psychology, Mental Measurements, and Statistics

C102. Educational Psychology. KEELER. (2)
C105*s*. Psychology in Common School Branches. WOODY. (1)
C110. Experimental Education. MCCLUSKY. (2)
C115*s*. Mental and Educational Measurements. GREENE. (2)
C120. The Mental Hygiene of Adolescence. MCCLUSKY. (2)
C149. Introduction to the Mathematical Analysis of Statistics, II. (Math. 50, College of L., S., and A.) CARVER. (2)
C150 Mathematical Theory of Statistics—Advanced Course. (Math. 171, College of L., S., and A.) CARVER. (2)
C160. Individual and Group Intelligence Testing. GREENE. (2)
C165. The Administration of Tests and the Tabulation, Interpretation, and Use of Test Results. KEELER. (2)
C175. The Psychology of Child Development. GREENE. (2)
C176. Current Studies in Child Development. OLSON. (2)
C180. The Work of the Personnel Officer in High School and Junior College. PURDOM. (2)
C195. Individualization of Instruction. COURTIS. (2)
C201. Advanced Educational Psychology—The Growth of the Self. MCCLUSKY. (2)

C204. Advanced Educational Psychology—Psychology of Learning. OLSON. (2)
C212. The Measurement of Growth. COURTIS. (2)
C225. Seminar in Elementary Education. WOODY. (2)
C230. Seminar in Educational Psychology. BERRY. (2)
C280. Seminar in Personnel Problems of High School and Junior College. PURDOM. (2)

Teaching of Special Subjects, including Demonstration Courses

Supplementary to the courses listed below, demonstration and observation courses in the University High School (grades 7, 8, and 9) will be given in English, French, History, Latin, Science, Mathematics, Industrial Arts, and Fine Arts, which will be regarded as essential and integral parts of the Special Methods courses. Two hours credit will be granted for each of the Special Methods courses only when combined with the corresponding Demonstration course.

D101*b*. Teaching of Science in the Junior and Senior High School. (First four weeks.) CURTIS. (2)
D104*s*. Teaching of Physics. FOX. (2)
D110*s*. The Teaching of English. THORPE. (2)
D125*s*. The Teaching of History and the Other Social Studies in the Junior and Senior High Schools. STEPHENSON. (2)
D130*s*. The Teaching of Latin in the Secondary Schools. GRINSTEAD. (2)
D135*s*. The Teaching and Supervision of Junior and Senior High School Mathematics. EVERETT. (2)
D155*s*. Teaching of Literature in the Elementary School, Grades 1 to 6. (Four weeks.) SMITH. (2)
D156*s*. The Teaching of the Social Studies in the Elementary School. SMITH. (2)
D160*s*. The Organization and Teaching of Industrial Arts in the Junior High School. BYRN. (2)
D202*b*. Problems in the Teaching of Science in the Elementary and Secondary Schools. Graduate Seminar. (Last four weeks.) CURTIS. (1)
D204*s*. Special Problems in the Teaching of Physics. (Four weeks.) FOX. (1)
D220. Special Problems in the Teaching of English. FRIES. (2)
D225*s*. Problems in the Teaching of the School Studies in the Junior and Senior High Schools. STEPHENSON. (2)
D230*s*. Special Problems in the Teaching of Latin in the Secondary School. GRINSTEAD. (2)
D235. Special Problems in the Teaching of Mathematics. (2)

Vocational Education and Vocational Guidance

E100. Principles of Vocational Education. MURTLAND. (2)
E101. Vocational Guidance. MYERS. (2)

E102. The Social and Economic Background of Vocational Education. MURTLAND. (2)
E113. Administration of Vocational Education. (Four weeks.) DIAMOND. (2)
E151*s*. Principles of Commercial Education. ————. (2)
E153*s*. Methods of Teaching Bookkeeping and Related Subjects. ————. (2)
E154*s*. Methods of Teaching Shorthand and Related Subjects. ————. (2)
E201*s*. Seminary in Vocational Education and Vocational Guidance. MYERS. (2 to 4)

For courses in drawing and in shop subjects see Colleges of Engineering and Architecture, pages 19-21.

Hygiene, Public Health, and Physical Education

(Starred courses first six weeks of session.)

(a) *Hygiene and Public Health*

*F101*s*. General Hygiene and Public Health. ————. (2)
*F107*s*. School Hygiene. ————. (2)
*F115*s*. Health Education in the Schools. ROOD. (2)

See also page 29 for Public Health Nursing and Public Health Institutes.

(b) *Physical Education and Athletics* (*Six Weeks*)

*F5*s*. The History and Philosophy of Physical Education. MITCHELL, WIEMAN. (2)
*F11*bs*. Organization and Administration of Physical Education and Athletics (Women). EVANS. (3)
*F15*s*. Preventive and Corrective Physical Education. MAY. (2)
*F18*s*. Physical Education for the Elementary Grades. ————. (2)
*F20*s*. Physical Education for the Junior and Senior High School. ————. (2)
*F108*s*. Community Play and Recreation. WOODY, MITCHELL. (Six weeks) (1). (Eight weeks) (2).
*F111. Organization and Administration of Physical Education. EDMONSON, MAY, MITCHELL, WIEMAN. (2)

(c) *Theory and Practice of Physical Education and Athletics* (*Men*)

*F41*as*. I. Football. KIPKE, BLOTT, CAPPON. (1)
*F41*as*. II. Football. KIPKE, BLOTT, CAPPON. (1)
*F42*bs*. I. Baseball. FISHER. (1)
*F42*bs*. II. Baseball. FISHER, BLOTT. (1)
*F43*as*. Graded Plays and Games. WASHKE. (1)
*F43*bs*. I. Basketball. VEENKER, CAPPON. (1)
*F43*bs*. II. Basketball. VEENKER, CAPPON. (1)
*F44*as*. Track and Field Athletics. FARRELL, HOYT. (1)
*F44*bs*. School Programs in Physical Education. MAY. (1)
*F45*as*. Athletic Training and Conditioning. HOYT. (1)

*F45*bs*. Scouting. WASHKE. (1)
*F46*as*. Minor Sports. JOHNSTONE. (2)
*F48*bs*. Advanced Apparatus and Tumbling. MAY. (1)
*F50*s*. Football Rules and Officiating. WIEMAN. (1)

(d) *General Courses in Physical Education for Women*

*F41*bs*. Natural Dancing (Elementary). (½)
*F41*cs*. Swimming (Beginners). (½)
*F41*ds*. Tennis. (½)
*F41*es*. Archery.
*F42*as*. Swimming (Intermediate). (½)
*F42*bs*. Swimming (Advanced) and Life-Saving. (½)
*F43*bs*. Clogging.
*F43*cs*. Golf.
*F45*as*. Natural Dancing (Advanced). (½)
*F45*bs*. Singing Games and Elementary Folk Dancing. (½)
*F46*s*. Advanced Folk Dancing. (½)

Public Health Nursing

*G102*s*. Child Hygiene. ————. (2)
*G109*s*. Principles of Public Health Nursing. BARTLETT. (2)
*G111*s*. Administration and Organization of Public Health Nursing. BARTLETT. (2)
*G112*s*. Applied Nutrition. GILLAM. (2)
*117*s*. Tuberculosis. WERLE. (2)
*119*s*. Medical Social Case Work. KETCHAM. (2)
*G204*s*. Vital Statistics. ISAMINGER. (2)
*206*s*. Public Health, Law and Administration. ISAMINGER. (2)

For other courses included in this group, see F101*s*, F107*s*, F115*s*, above; and for Public Health Institutes see below.

PUBLIC HEALTH INSTITUTES

For those public health workers who are unable to attend the regular Summer Session courses the University offers intensified work in the form of week-end institutes. These special public health institutes have been scheduled for each Friday and Saturday over a period of six weeks. Lectures covering the wide range of fields concerned with public health are included. A fee of $3 will be charged for each or any part of the six institutes.

SCHOOL OF BUSINESS ADMINISTRATION

The Summer Session of the School of Business Administration, extending from June 30 to August 22, offers most of the required first-year courses. This makes it possible for students who have taken a substantial part of the first-year work in Business Administration to complete requirements for admission to regular second-year standing before the beginning of the academic session in September. The

degree of Master of Business Administration is conferred upon the completion of a three-year program in the School following at least two years of previous work of collegiate grade. For explanation of the numbering of courses see page 7.

92*s*. Elements of Business Administration. BRADBURY. (2)
101*s*. Principles of Organization and Production. BRADBURY. (2)
102*s*. Principles of Personnel, II. BRADBURY. (2)
111*s*. Advanced Accounting Principles, I. PATON. (2)
112*s*. Advanced Accounting Principles, II. PATON. (2)
151*s*. Marketing Principles, I. GRIFFIN. (2)
152*s*. Marketing Principles, II. GRIFFIN. (2)
161*s*. Financial Principles, I. WATERMAN. (2)
162*s*. Financial Management, II. WATERMAN. (2).

SCHOOL OF FORESTRY AND CONSERVATION

A camp for practical instruction in basic field courses is maintained in Alger County in the Upper Peninsula of Michigan, June 30 to August 22. Attendance at this camp is compulsory for all professional students in the School and preferably constitutes their first work in the School. Qualified sudents are therefore urged to attend the camp the summer following their sophomore year in college. Applications should be made to Dean Samuel T. Dana, Ann Arbor. For explanation of the numbering of courses see page 7.

115. Forest Mensuration. CRAIG. (4)
122*s*. Forest Improvements. ALLEN. (2)
123*s*. Fire Prevention and Control. ALLEN. (2)

SCHOOL OF MUSIC

The Summer Session in the School of Music extends from June 30 to August 22. Courses are offered to meet the needs of (a) students who wish to shorten the time necessary to complete courses leading to the degrees in Music; (b) students in other schools and colleges who wish to study music for purely cultural purposes, and who wish to apply credit earned for such study towards the A.B. or B.S. degrees; (c) professional musicians, supervisors of music in public schools, and private teachers who wish to broaden their training in a specific subject or department, whether or not they are candidates for an advanced degree. For credit in other colleges and schools, see section on Music in the Complete Announcement of the Summer Session.

For explanation of the numbering of courses see page 7.

Theory and Literature of Music

B1. Elementary Theory, Ear Training, and Dictation. CUYLER. (4)

B31. Harmony and Part Writing. PICK. (2)
B33. Advanced Dictation and Sight Singing. CUYLER. (2)
B39. Orchestra. MATTERN. (1)
B101. Counterpoint. PICK. (2)
B112. Symphonic Literature. MOORE. (2)
B151. Canon and Fugue. MOORE. (2)
B155*s*. Choral Literature. MOORE. (2)
B157. Ensemble. String Quartet. PICK. (2)
B161. Analysis. CUYLER. (2)

Music Education

C101. The Teaching and Supervision of Vocal Music in Elementary Schools. HIGBEE. (2)
C103. The Teaching and Supervision of Vocal Music in the High Schools. HIGBEE. (2)
C105. Practice Teaching of Vocal Music in Schools. HIGBEE. (2)
C107. The Teaching of String Instruments in Classes in Secondary Schools. MATTERN. (1)
C109. The Teaching of Wood Wind Instruments in Classes in Secondary Schools. MATTERN. (1)
C111. The Teaching of Brass and Percussion Instruments in Classes in Secondary Schools. MATTERN. (1)
C113. The Teaching of Voice in Classes in Secondary Schools. SHOWERS. (2)
C115. The Teaching of Piano in Classes. MAIER. (2)
C151. Conducting and Score Reading; Choral and Orchestral. MATTERN. (2)
C201. Special Problems in Organization of High School Music Curricula; Materials for Chorus, Band, and Orchestra. MATTERN. (2)

Applied Music

I. *Class Instruction. No Additional Fee*
A31. Piano (Elementary). MAIER. (2)
A55. Piano (Intermediate). MAIER. (2)
A33. Violin. WHITMIRE. (2)
A41. Viola and Bass. CUYLER, MATTERN. (2)
A45. 'Cello. PICK. (2)
A47*a*. Flute (2); 47*b*. Clarinet (2); 47*c*. Oboe (2); 47*d*. Bassoon, (2). FALCONE.
A49*a*. Cornet (2); 49*b*. French Horn (2); 49*c*. Trombone (2). FALCONE.

II. *Individual Instruction. Additional Fee Charged*
A1 to 201. Piano. MAIER, RHEAD, OKKELBERG, ————. (1 or 2 or 3)
A11 to 211. Voice. HARRISON, HAMILTON, ————. (1 or 2 or 3)
A15 to 215. Violin. WHITMIRE, ————. (1 or 2 or 3)

A21 to 221. 'Cello. PICK. (1 or 2 or 3)
A25 to 225. Organ. CHRISTIAN. (1 or 2 or 3)
A27 to 227. Band and Orchestral Instruments. FALCONE. (2)

For detailed information concerning music fees for individual instruction, instrument rentals, etc., see Announcement of the School of Music.

BIOLOGICAL STATION

The Biological Station of the University, located on the south shore of Douglas Lake in Cheboygan County, is conducted as a camp, June 30 to August 22. The work is chiefly field work. Excellent facilities are offered in several lines of botany and zoology for research either by independent investigators or by graduate students. As only a limited number of students can be accommodated, application should be made at the earliest possible date to Director George R. LaRue, Ann Arbor, Michigan. A special bulletin will be mailed upon request.

Botany

43. Taxonomy of Fresh Water Algae. NICHOLS. (2)
44. Taxonomy of the Bryophytes. NICHOLS. (2)
45. Systematic Botany. EHLERS. (2)
46. Plant Anatomy. C. D. LARUE. (4)
165. Advanced Systematic Botany. EHLERS. (2)
166. Plant Ecology. GATES. (4)
168. Advanced Plant Ecology. NICHOLS. (2)
169. Ecological Plant Anatomy. C. D. LARUE. (2)
285. Special Work in Botany. GATES, NICHOLS, EHLERS, LARUE. (2, 4, 6, or 8)
286, 287, 288, 289. Research in Botany. Special Fields.

Zoology

49. Entomology. HUNGERFORD. (4)
59. Ornithology. BLANCHARD. (2)
119. Advanced Ornithology. BLANCHARD. (2)
139. Ichthyology. CREASER. (2)
169. Herpetology and Mammalogy. CREASER. (2)
179. Limnology. WELCH. (4)
189. Helminthology. CORT, THOMAS. (4)
231. Advanced Zoological Studies. G. R. LARUE, WELCH, CORT, HUNGERFORD, CREASER, BLANCHARD, THOMAS. (2, 4, 6, or 8)
261, 263, 265, 275, 291, 293, 295. Research in Zoology. Special Fields.

The Complete Announcement of the Summer Session, giving a full description of each course, may be obtained from CARLTON F. WELLS, Secretary of the Summer Session, Ann Arbor, Michigan.

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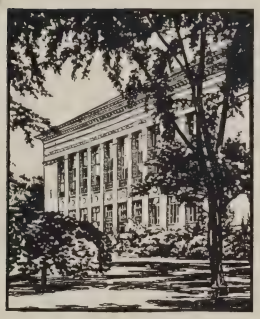
Summer Session

Abridged Announcement

1933



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SUMMER SESSION CALENDAR

1933

June	16, 17, 19.	Registration in the Law School.
June	20.	Work begins in the Law School, and at the Geology and Geography Station.
June	20-24.	Session of the Alumni University.
June	23, 24.	Registration in all other Schools and Colleges.
June	26.	Work begins in all other Schools and Colleges, and at the Biological Station.
July	10.	Four-week courses in the School of Education begin.
July	26.	Second term in the Law School begins.
July	29.	Session ends at the Geology and Geography Station.
Aug.	4.	Four-week courses in the School of Education end.
Aug.	4.	Work closes in the Medical School (six-week courses) and in Hygiene and Public Health.
Aug.	18.	Session ends in the Colleges of Literature, Science, and the Arts, of Engineering, of Architecture, and of Pharmacy, in the Medical School (eight-week courses), School of Dentistry, School of Education, School of Business Administration, School of Music, and the Graduate School; at the Forestry and Conservation Camp and at Camp Davis.
Aug.	19.	Session ends at the Biological Station.
Aug.	31.	Session ends in the Law School.

The Complete Announcement will be ready for distribution about March 15.

Entered as second-class matter at the Post Office at Ann Arbor, Michigan. Issued by the University of Michigan semi-weekly from March to August, inclusive, and weekly from September to February, inclusive.

SUMMER SESSION, 1933

Administrative Officers

ALEXANDER GRANT RUTHVEN, *President*
EDWARD HENRY KRAUS, *Dean of the Summer Session*
LOUIS MICHAEL EICH, *Secretary of the Summer Session*
IRA MELVILLE SMITH, *Registrar*

GENERAL INFORMATION

Organization and Extent of Instruction.—The following Schools and Colleges are in operation during the Summer Session: the College of Literature, Science, and the Arts, the College of Engineering, the Medical School, the Law School, the College of Pharmacy, the School of Dentistry, the College of Architecture, the School of Education, the School of Business Administration, the School of Forestry and Conservation, the School of Music, and the Graduate School. Courses are given in hygiene and public health, and in athletic coaching and administration. A Biological Station is maintained during the summer in the northern part of Michigan. Camp Davis, for field work in surveying, is located near Jackson, Wyoming. Intensive field courses in geology and geography are conducted in the vicinity of Mill Springs, Kentucky. The School of Forestry and Conservation maintains a summer camp in the Upper Peninsula of Michigan.

The session of the Medical School is six weeks in length—except for anatomy, internal medicine, physiological chemistry, physiology, roentgenology, and surgery, in which subjects the work is continued for eight weeks. In the Law School the session is ten weeks, divided into two periods of five weeks each. All of the other Schools and Colleges are in session for a period of eight weeks.

To meet the needs of teachers and educational administrators who cannot attend the full session, a number of special shorter courses (four weeks in length) are offered in the School of Education, from July 10 to August 4.

Character of Work.—The work of the Summer Session is equivalent in method, character, and credit value to that of the regular year. The teaching staff numbers more than four hundred. In many respects the advantages offered during the Summer Session are superior to those enjoyed at any other time.

Credit and Credit Certificates.—In the Colleges and Schools giving instruction for eight weeks, the normal amount of credit which

a student may earn is eight hours, which is one-half of that which may be earned during one semester. In the other Schools, a proportionate amount of credit may be earned. Students not matriculated in the University will, upon request, receive certificates of attendance and of work satisfactorily performed.

Graduate Courses.—Graduates of colleges and universities of recognized standing may enroll for the higher degrees. All applicants for admission should submit their credentials to the Dean of the Graduate School, from whom further information may be obtained.

Special Privileges to Doctors of Philosophy and Science.—The privilege of attending seminars and of carrying on research in the laboratories and libraries during the Summer Session will be extended by the President of the University, on recommendation of a chairman of a department, to doctors of philosophy or of science in this or other universities. There will be no charge except for laboratory supplies. Those desiring to avail themselves of this privilege should correspond with the President before the opening of the Summer Session.

Alumni University.—An institute for graduates of the University is conducted by the Bureau of Alumni Relations, on the five days following Commencement, June 20 to 24. Lecture courses are given by members of the Faculty, representing ten different fields. The fee is $10. For information, address Wilfred B. Shaw, Director.

The Libraries.—The University Libraries contain over 800,000 volumes, and regularly receive 5,361 periodicals and newspapers. The Library will be open daily, except Sundays, from 7:45 A.M. to 10:00 P.M.

Lectures, Concerts, and Plays.—Public lectures are given almost every afternoon at five. Special concerts are given weekly, chiefly by the Faculty of the School of Music. A series of entertaining and significant plays is also presented during the first seven weeks of the session.

Excursions.—Trips are conducted to the great automobile and airplane plants, important industrial buildings, the Library, and the Art Institute in Detroit; to the Michigan State Prison in Jackson; and to the Automobile Proving Ground at Milford. There are two longer excursions, to Niagara Falls and to Put-in-Bay, Lake Erie.

University Health Service.—In order to conserve the health of regularly enrolled students and to provide that those who become ill may receive proper medical attention, a staff of physicians is maintained to give advice, dispense medicine, and make examinations at the office of the University Health Service, without charge. Physicians will be in attendance also at the various camps.

The Michigan Union.—The Union serves as a social and recreational center for faculty, alumni, and students of the University. All men students in the Summer Session are members of the Union.

The Michigan League.—The Michigan League Building aims to unify and enrich women's activities, both academic and social. All women students of the Summer Session are members of the Women's League. The Lydia Mendelssohn Theatre is located in this building.

Housing for Women.—All women students not registered in the Graduate School are required to live in residences approved in the Office of the Dean of Women. Four of the University dormitories for women will be open for the Summer Session of 1933. Students desiring to live in one of these halls should correspond with its director: Helen Newberry Residence (graduate students only), Mrs. Florence Tousey; Betsy Barbour House, Mrs. Leona M. Diekema; Mosher-Jordan Halls, Miss Inez Bozorth; Alumnae House, Miss Edith Barnard. A list of residences other than dormitories will be mailed from the Office of the Dean of Women after May 15, 1933, upon request.

Fees.—Fees will be required of those attending as visitors as well as of those who wish to do regular work and take the examinations. Summer Session fees are as follows:

College of Literature, Science, and the Arts, College of Engineering, College of Pharmacy, College of Architecture, School of Education, School of Business Administration, and School of Music, $34.00.

Medical School: laboratory and demonstration courses, $34.00; clinical courses, $39.00.

Law School, $41.50.

Graduate School: matriculates, $34.00; non-matriculates, $39.00.

Public Health Nursing, $34.00; Week-End Public Health Institutes, $3.00 for each or any part of an institute.

School of Education: four-week courses, $21.00.

School of Dentistry, $61.00.

Biological Station, Camp Davis, Field Courses in Geology and Geography, Forestry and Conservation Camp: tuition, $32.00 plus camp fees of $10.00 or $12.00.

These fees apply regardless of the number of courses taken. The above include laboratory fees, except that a cash deposit is required to cover the cost of material used and unusual breakage in the laboratories of Chemistry, Hygiene, and Bacteriology.

Students who enroll for courses that continue for four weeks or more will be entitled to the privileges of the Michigan Union or the Michigan League, and to copies of the *Michigan Daily*.

Cost of Living.—Good board with comfortable rooms may be secured at moderate prices, as follows: single rooms, $2.00 to $4.00 a week; double rooms or suites for two persons, $2.00 to $3.50 a person; board, from $3.00 to $6.00 a week.

Summer Employment.—Men students who desire to secure employment during the Summer Session are requested to communicate directly with Joseph A. Bursley, Dean of Students. Women students will communicate with the office of the Dean of Women.

Bureau of Appointments and Occupational Information.—The services of this Bureau are available to students in the Summer Session. The Bureau is located at 201 Mason Hall.

Admission.—In general, courses are open to all persons qualified to pursue them. Students from other colleges and universities are required to present a statement from an administrative officer showing that they are in good standing in the institution in which they are regularly enrolled. Students of this University who wish to transfer from one School or College to another during the Summer Session, and students who have at any time been dismissed from any School or College of this University will not be allowed to enroll without the consent of the administrative officers concerned.

Registration.—Students are urged to arrive in Ann Arbor not later than June 24, in order to complete their registration before the opening of the Session on June 26, except in the Law School, where registration may begin as early as June 16.

Automobile Regulations.—The University applies certain restrictions to the use of automobiles by its students. The restrictions do not apply to the following students of the Summer Session pursuing instruction in Ann Arbor:

1. Those who in the academic year are engaged in professional pursuits, as, for example, teachers, lawyers, physicians, dentists, nurses;
2. Those attending the Public Health Institutes;
3. Those who are 28 years of age or over;
4. Those who have a faculty ranking of teaching assistant or its equivalent.

Students not in the above groups may secure from the Dean of Students permits to drive cars:

a) Provided their circumstances necessitate their use;
b) For participation in outdoor sports, such as golf, tennis, and swimming.

Students at Camp Davis, the Biological Station, the Camp for Forestry and Conservation, and the Station for Geology and Geography are subject to the automobile regulations of those units.

Location and Railroad Connections.—The city of Ann Arbor, with a population of about 30,000, is delightfully located in southeastern Michigan, thirty-seven miles west of Detroit. It is easily reached by the Michigan Central and Ann Arbor Railroads, or by through and local bus lines.

SUMMARY OF COURSES

Each course announced below carries the number and the name of the course, the number of hours credit, and the name of the instructor. For example: 173. Museum Methods. 3. GAIGE, THOMPSON. When credit hours are not indicated, arrangement is to be made with the instructor. If minor changes are necessary, they will appear in the Complete Announcement to be issued about March 15. A full description of each course will be given in the Complete Announcement, which may be obtained from the Secretary of the Summer Session, Ann Arbor, Michigan.

In general, courses numbered from 1 to 100 are elementary, those below 30 being intended particularly for freshmen. Courses numbered from 101 to 200 are advanced, open to undergraduates and graduates. Courses with numbers above 200 are primarily for graduates. An *s* following a Summer Session course number indicates that it carries a credit-hour total different from the course of the same number offered during the academic year.

GRADUATE SCHOOL, AND COLLEGE OF LITERATURE, SCIENCE, AND THE ARTS

G. CARL HUBER, *Dean of the Graduate School*
JOHN R. EFFINGER, *Dean of the College of Literature, Science, and the Arts*

The Summer Session in the Graduate School and the College of Literature, Science, and the Arts extends from June 26 to August 18. Graduate and undergraduate courses offered by the various departments of the College of Literature, Science, and the Arts are given below. Graduate courses are also listed in the other units: see College of Engineering, Medical School, College of Pharmacy, School of Education, School of Business Administration, and School of Music.

Anthropology

173. Museum Methods. 3. GAIGE, THOMPSON.
174. Museum Methods. Advanced Work. GUTHE.

Astronomy

31*s*. Modern Astronomy. The Solar System. 2. MAXWELL, LOSH.
32*s*. Modern Astronomy. The Stars and Nebulae. 2. RUFUS, McLAUGHLIN.
33. Elementary Observational Astronomy. 1. LOSH.
101*s*. Practical Astronomy. 2. MAXWELL.
104. History of Astronomy in America. 2. LOSH.
105. Variable Stars. 2. McLAUGHLIN.
151*s*. Solar Physics. 2. RUFUS.

152*s*. Stellar Spectroscopy. 2. McLaughlin.
207. Research. Rufus.

Botany

1. Elements of Botany. 4. Tupper, Arnold.
32*s*. Systematic Botany and Field Studies. 2. Erlanson.
33*s*. Microbiology of Air, Soil, Water, and Food. 4. Jones.
34*s*. Plant Physiology. 4. Gustafson.
51*s*. Cytological Microtechnique. 3. Erlanson, Jones.
150. Geological History of Plants. 3. Arnold.
163. Advanced Plant Physiology. 2 or more. Gustafson.
251. Research in Genetics. Bartlett, Blanchard, Erlanson.
255. Research in Mycology and Pathology. Mains.
265. Research and Advanced Instruction in Plant Anatomy. Tupper.
269. Research in Plant Physiology. Gustafson.
275. Unclassified Research. Bartlett.

For courses at the Biological Station, see page 32.

Chemistry

3. General and Inorganic Chemistry. 4. Smeaton.
6. General and Inorganic Chemistry. 4. Hodges.
15. Qualitative Analysis. 4. McAlpine.
17. Qualitative Analysis. 5. McAlpine.
42*s*. Elementary Theoretical and Physical Chemistry. 3. Ferguson.
43*a*, 43*b*. Physico-Chemical Measurements. 2 to 4. Case.
45. Elementary Theoretical and Physical Chemistry. 3. Case.
57. Quantitative Analysis. 5. Meloche.
63. Organic Chemistry. 4. Bachmann.
65. Organic Chemistry. 2 to 4. Halford.
69. Organic Chemistry. 5. Anderson.
105. History of Chemistry and Development of Chemical Theory from Remote Times to the Present. 2. Smeaton.
111. Electrochemistry. 2. Ferguson.
125. Colloid Chemistry. 2. Bartell.
127. Colloid Chemistry Laboratory. 2. Bartell.
131. Advanced Physico-Chemical Measurements. 2 to 4. Ferguson, Case.
132. Advanced Theoretical and Physical Chemistry. 2. Hodges.
145. Advanced Quantitative Analysis. 4 or 5. Willard.
149. Special Problems in Analytical Chemistry. Willard.
163. Organic Synthesis and Ultimate Analysis. 2 to 4. Bachmann.
168. Advanced Organic Chemistry. 2. Halford.
223. Laboratory Research in Physical Chemistry. Bartell, Ferguson, Hodges, Case.
225. Seminar in Colloid Chemistry. Bartell.
227. Research Problems in Colloid Chemistry. Bartell.
240. Seminar in Analytical Chemistry. 1. Willard.
242. Physico-Chemical Methods in Quantitative Analysis. 2 or 3. Willard.

251. Research in Analytical Chemistry. WILLARD, MELOCHE.
265. Research in Organic Chemistry. ANDERSON, BACHMANN, HALFORD.

For courses in Chemical Engineering, see page 18.

Classical Archaeology

122*s*. Monumental History of the City of Rome. 2. WINTER.
123*s*. Ancient Greek Life. 2. BLAKE.
173. Museum Methods. 3. GAIGE, THOMPSON.
174. Museum Methods. Advanced Work. WINTER, BUTLER, THOMPSON.
215. Laboratory Course in Roman Antiquities. 2. BUTLER.
216. Advanced Laboratory Course in Roman Antiquities. 2. BUTLER.

Drawing

See Free-Hand Drawing and Painting, page 25; also, see Mechanism and Engineering Drawing, page 20.

Economics

51*s*. Principles of Economics, I. 2. DEVOL.
52*s*. Principles of Economics, II. 2. DEVOL.
101*s* and 102*s*. Money and Credit. 4. HORTON.
133*s*. Railroad Regulation. 2. JONES.
134*s*. Public Utility Regulation. 2. JONES.
143*s*. European Economic Problems. 2. TIMOSHENKO.
153*s*. Modern Economic Society. 2. DEVOL.
171*s* and 172*s*. Principles of Accounting, I and II. 4. BRIGGS.
177*s*. Elements of Statistics. 2. TIMOSHENKO.
179*s*. Business Cycles. 2. TIMOSHENKO.
197*s*. Programs of Social-Economic Reform. 2. ELLIS.
252*s*. Leading Problems in Economic Theory. 2. ELLIS.
255*s*. History of Economic Thought. 2. ELLIS.

Education

See School of Education, pages 25-29.

English Language and Literature

English Composition

1. English Composition. 3. DAVIS.
2. English Composition. 3. DAVIS.
47*s*. Sophomore Composition. 2. NELSON.
153*s*. Creative Writing. 2. WALTER.

English Language

103*s*. Old English. 2. MARCKWARDT.
105*s*. Chaucer. 2. MARCKWARDT.
109*s*. English Phonetics. 2. MARCKWARDT.
211*a*. Pro-Seminar in the English Language. 2. FRIES.

English Literature

31*s*. Introduction to English Literature. *2*. Nelson, Walter.
32*s*. Shakespeare. *2*. Weaver.
111*s*. Milton. *2*. Humphreys.
121*s*. Age of Wordsworth. *2*. Weaver.
125*s*. Introduction to the Poetry of Browning. *2*. Weaver.
128*s*. Victorian Literature. *2*. Griggs.
143. Contemporary Drama. *2*. Campbell.
160*s*. Shakespeare's Tragedies. *2*. Mueschke.
164*s*. English Drama from 1600 to 1642. *2*. Tilley.
168. English Literature of the Renaissance. *2*. H. S. V. Jones.
169*s*. Contemporary Prose. *2*. Walter.
178*s*. English Literature from 1730 to 1798. *2*. Bredvold.
182*s*. History of American Literature since 1830. *2*. Bates.
183*s*. The English Novel in the Eighteenth Century. *2*. Humphreys.
196*s*. The Teaching of English. *2*. Thorpe.
211*b*. Pro-Seminar in the Renaissance. *2*. Jones.
211*c*. Pro-Seminar in English Drama. *2*. Mueschke.
211*d*. Pro-Seminar in the Classical Period. *2*. Bredvold.
211*f*. Pro-Seminar in the Romantic Period. *2*. Griggs.
211*h*. Pro-Seminar in American Literature. *2*. Bates.
230. Spenser and His Age. *2*. Tilley.
281. Studies in the Second Half of the Eighteenth Century. *2*. Campbell.
296. The Teaching of English in College. *2*. Fries.

Rhetoric and Criticism

166*s*. Studies in Criticism from the Lyrical Ballads to the Present. *2*. Thorpe.
180*s*. Diction and Usage. *2*. Cowden.
211*e*. Pro-Seminar in Rhetoric and Criticism. *2*. Cowden.
217. Ancient Rhetoric and Poetic. *2*. Nelson.

French

See Romance Languages, page 16.

General Linguistics

See Speech and General Linguistics, page 17.

Geography

(a) *At Ann Arbor*

1*s*. Elements of Geography. *2*. Dodge.
101. Essentials of Regional Geography. *2*. Dodge.
110*s*. Geography of North America. *2*. McMurry.
112*s*. Geography of Europe. *2*. Dodge.
163*s*. Geography of Michigan. *2*. McMurry.
200. Research and Special Work in Regional Geography. McMurry, Hall.
204*s*. Advanced Field Course. McMurray.

(b) *Field Courses in Kentucky and Tennessee (Six Weeks)*
105. Field Course in Geography. 8. HALL.
205. Advanced Field Course in Geography. 8. HALL.

Geology

(a) *At Ann Arbor*
31*s*. Earth Features and Their Meaning. 2. GOULD.
32*s*. Historical Geology. 2. BULLARD.
105*s*. Organic Evolution. 2. BULLARD.
155*s*. Glaciation. 2. GOULD.
203. Research and Special Work in Stratigraphy. BULLARD.
(b) *Field Courses in Kentucky and Tennessee (Six Weeks)*
125. Field Course in Geology. 8. EHLERS.
126. Field Course in Physiography. 8. SCOTT.
202. Research and Special Work in Physiography. SCOTT.
203. Research and Special Work in Paleontology and Stratigraphy. EHLERS.

Germanic Languages and Literatures

1. Beginners' Course. 4. GAISS, REICHART.
31*s*. Modern Prose. 2. REICHART, GAISS.
35*s*. Scientific German. 2. LEE.
125. German Conversation. 2. HILDNER.
159. Goethe's *Faust*. 2. WAHR.
165. Lessing's Works. 2. EATON.
219*s*. Seminar in *Sturm und Drang*. 2. HILDNER.
243*s*. Seminar in Contemporary Literature. 2. WAHR.
245*s*. Seminar in Goethe's Life and Works. 2. EATON.

Greek Language and Literature

(a) *In Greek*
1*s*. Elementary Greek. 2 or 4. BLAKE.
33*s*. Reading of Easy Greek Prose. 2. DUNLAP.
154*s*. Plato. *Protagoras*. 2. BONNER.
171*s*. Seminar in Aeschylus. 2. BONNER.
(b) *In English*
123*s*. Ancient Greek Life. 2. BLAKE.

History

33*s*. History of England from 1603 to 1760. 2. RAMSAY.
92*s*. The Political and Diplomatic History of Europe, 1870–1919. 2. EHRMANN.
102*s*. Greek History. 2. BOAK.
103*s*. History of Rome under the Principate. 2. BOAK.
111*s*. The History of Western Europe, 1500 to 1618. 2. HYMA.
119*s*. Medieval Civilization. 2. JONES.
129*s*. Social and Intellectual History of the United States. 2. VANDERVELDE.
133*s*. Constitutional History of England. 2. RAMSAY.

140*s*. The United States in Recent Decades. 2. DUMOND.
141*s*. The History of Hispanic America. 2. AITON.
151*s*. The Causes and Character of the American Revolution. 2. CRANE.
153*s*. Pro-Seminar in European History. 2. JONES.
201*s*. Pro-Seminar in Civil War Period. 2. DUMOND.
238*s*. Seminar in Hispanic-American History. 2. AITON.
247*s*. Studies in the Age of the Reformation. 2. HYMA.
249*s*. Seminar in Recent European History. 2. EHRMANN.
257*s*. Seminar in American History. 2. CRANE.
259*s*. Seminar in American History. 2. VANDERVELDE.

Hygiene

See page 29.

Journalism

51*s*. Elements of Journalism. 2. MAURER.
101*s*. Feature Writing. 2. BRUMM.
103*s*. Critical Writing and Reviewing. 2. BRUMM.
109*s*. The Teaching of Journalism. 2. MAURER.

Landscape Design

101. Home Grounds: An Introduction to Landscape Design. 2. CONE.
102. City Planning and Civic Improvement. 2. WHITTEMORE.
105. Trees. 2. WHITTEMORE.
106. Shrubs and Vines. 2. WHITTEMORE.
114. Field and Office Practice. 4. CONE.

Latin Language and Literature

50. The History of Roman Literature, with Readings from Translations. 2. MEINECKE.
101. Roman Political Institutions. 2. CRITTENDEN.
103. Latin Writing. 2. MEINECKE.
110. Roman Comedy. 2. CRITTENDEN.
122*s*. Monumental History of the City of Rome. 2. WINTER.
130*s*. The Teaching of Latin in Secondary Schools. 2. DUNHAM.
135*s*. Medieval Latin. 2. MEINECKE.
137*s*. Virgil: The Eclogues and Georgics. 2. BUTLER.
155*s*. Teachers' Course. 2. DUNLAP.
215. Laboratory Course in Roman Antiquities. 2. BUTLER.
216. Advanced Laboratory Course in Roman Antiquities. 2. BUTLER.
220. Direction of Thesis Work. WINTER.
239. Seminary: The Annals of Tacitus. 2. WINTER.

Library Science

Courses 103, 109, 111, 115, and 119 are open only to students with 120 hours credit in the University of Michigan, or an equivalent

secured elsewhere, with 180 honor points. A reading knowledge of French and German is also a prerequisite.

The advanced courses in Library Science, *202*, *209s*, *221*, and *232s*, presuppose a bachelor's degree from an accredited college or university, a reading knowledge of French and German, and one year of study in Library Science either at the University of Michigan or in an accredited library school. Some previous study of Latin (at least two units of Latin in the high school) is strongly recommended.

103. Cataloging and Classification of Books. 4. PARSONS.
109. Book Selection and Ordering for Libraries. 3. COOPER.
111. Library Administration. 2. COOPER.
115. Care and Use of Ephemeral Material. 2. THOMAS.
119. Reference Work and Bibliography. 3. WEAD.
128. Making of the Book. 2. WEAD.
202. National and Regional Bibliography. 2. EPPENS.
209s. Seminar in College Library Administration. 2. SHAW.
221. Seminar in Special Administrative and Bibliographical Problems. 2. THE STAFF.
225s. Bibliography of American History and Literature. 2. SHAW.
240. United States Government Publications. 2. MCALLISTER.

Mathematics

1s. College Algebra. 2. ROUSE.
2. Plane Analytic Geometry. 4. CHURCHILL.
4. Plane and Solid Analytic Geometry. 2. CHURCHILL.
8. Trigonometry. 2. HOPKINS.
36. Calculus, I. 4. AYRES.
37. Calculus, II. 4. COE.
49. Introduction to the Mathematical Analysis of Statistics, I. 2. CARVER.
50. Introduction to the Mathematical Analysis of Statistics, II. 2. MENGE.
51s. Mathematics of Finance. 2. MENGE.
52s. Mathematics of Finance and Insurance. 2. MENGE.
101. Topics in Calculus. 2. BRADSHAW.
103s. Differential Equations. 2. POOR.
112s. Higher Algebra. 2. FIELD.
115s. Higher Geometry. 2. RAINICH.
121s. Theory of Probability. 2. CRAIG.
122s. Finite Differences. 2. CARVER.
131s. The Figures of Solid Geometry. 2. BRADSHAW.
133. Solid Analytic Geometry. 2. CHURCHILL, ROUSE.
141s. Analytic Mechanics. 2. HOPKINS.
151s. Advanced Calculus. 2. AYRES, ROUSE.
152s. Infinite Series, with Special Reference to Fourier Series. 2. COE.
169. Graphical Methods. 2. CRAIG.
176s. Vector Analysis. 2. FIELD.

182*s*. Teaching of Geometry. 2. KARPINSKI.
183. History of Mathematics. 2. KARPINSKI.
195*s*. Introduction to the Foundations of Mathematics. 2. WILDER.
196*s*. Studies in the Foundations and Point Sets. 2. WILDER.
203*s*. Theory of Functions of a Real Variable. 2. HILDEBRANDT.
213*s*. Partial Differential Equations. 2. HILDEBRANDT.
227*s*. Mathematical Theory of Statistics. 2. CRAIG.
241. Applied Mathematics—Engineering Problems. 2. POOR.
262*s*. Mathematics of Relativity. 2. RAINICH.
287. Seminar in Pure Mathematics. 1. HILDEBRANDT, RAINICH, and others.

Mineralogy and Petrography

31. Elements of Mineralogy. 2. HUNT, SLAWSON.
32. Gems and Gem Materials. 2. SLAWSON.
33. Determinative Mineralogy. 2. SLAWSON.
105. Qualitative Blowpipe Methods. 2. HUNT.
107. Lithology. 2. HUNT.
205. Special Work. HUNT, SLAWSON.

Music

See School of Music, page 30.

Oriental Languages and Literatures

107. The Lands and Peoples of the Near East. 2. WORRELL.
108. Mohammedan Civilization. 2. WORRELL.

Philosophy

31*s*. Introduction to Philosophy. 2. SELLARS.
33*s*. Introduction to Logic. 2. LANGFORD.
101*s*. Ancient Philosophy. From Thales to St. Augustine. 2. UCHENKO.
102*s*. History of Modern Philosophy. 2. VIBBERT.
106*s*. Contemporary Metaphysics. 2. VIBBERT.
108*s*. The Philosophy of Science. 2. UCHENKO.
129*s*. Introduction to Ethics. 2. LANGFORD.
139*s*. Aesthetics. 2. PARKER.
141*s*. Social Philosophy. 2. SELLARS.
142. The Philosophy of Value. 2. PARKER.

Physics

35. General Physics: Mechanics, Sound, and Heat. 4. RANDALL.
36. General Physics: Electricity and Light. 4. DUFFENDACK.
37. Problems. 1. SLEATOR.
38. Problems. 1. LINDSAY.
39. Laboratory Work in Mechanics, Sound, and Heat. 1. SLEATOR.
40. Laboratory Work in Electricity and Light. 1. LINDSAY.
45. General Physics: Mechanics, Sound, and Heat, for Engineers. 5. RANDALL.

46. General Physics: Electricity and Light, for Engineers. 5. DUFFENDACK.
105. Modern Physics. 2. BARKER.
116. Laboratory Arts. 1. KESSLER.
145. Electrical Measurements. 4. SMITH.
160. Spectroscopy. 2. SAWYER.
165. Electron Tubes. 2. WILLIAMS.
171. Mechanics. 2. LINDSAY.
181. Heat. 2. CORK.
183. Laboratory Work in Heat. 2. CORK.
186. Light. 2. SLEATOR.
188. Laboratory Work in Light. 2. SLEATOR.
195. Spectral Series. 2. RANDALL.
196. Atomic Structure. 2. BARKER.
207. Analytical Dynamics. 2. DENNISON.
209. Thermodynamics. 2. UHLENBECK.
210. The Kinetic Theory of Matter. 2. UHLENBECK.
211. Quantum Theory and Atomic Structure. 2. UHLENBECK.
255. Theory of Band Spectra. 2. DENNISON.
265*s*. Conduction of Electricity through Gases. 2. DUFFENDACK.
281. Special Problems. WILLIAMS and others.
297. Physics Colloquium.

Physiology

See page 23.

Political Science

107*s*. American Government. 2. DORR.
108*s*. American State Government. 2. POLLOCK.
109*s*. Civics. 2. DORR.
113*s*. Political Parties and Electoral Problems. 2. POLLOCK.
121*s*. American Constitutional Law. 2. BROWN.
154*s*. Governments and Politics of the Far East. 2. HAYDEN.
161*s*. Public International Law. 2. CALDERWOOD.
165*s*. International Organization and Administration. 2. CALDERWOOD.
181*s*. Introduction to Political Science. 2. CALDERWOOD.
251*s*. British Political Institutions. 2. HAYDEN.
293*s*. Bibliography and Methods of Research. 2. BROWN.

Psychology

30*s*. Psychology for Nurses. 2. MAIER.
31. Elementary Psychology. 3. BROWN, THUMA.
33*s*. Experimental Psychology. 3. GREENE.
34*s*. Experimental Psychology. 3. GREENE.
42. Psychology of the Abnormal. 2. PILLSBURY.
101*s*. Comparative Psychology. 2. MAIER.
103. Practicum in Clinical Testing. 2. GREENE.
104*s*. Genetic Psychology. 2. MAIER.

108*s*. Psychology of Language. *2*. Meader, Pillsbury.
109*s*. Psychology of Advertising. *2*. Adams.
110. Vocational Psychology. *2*. Griffitts.
161*s*. Instinct and Emotion. *2*. Griffitts.
165*s*. Psychology of Personality. *2*. Adams.
205. Special Work.
211*s*. Central Nervous System and Mental Processes. *2*. Maier.
219*s*. Points of View in Psychology. *2*. Shepard.

Romance Languages

(a) *French*
1. Beginners' Course. 4. Hootkins.
2. French of the Second Semester. 4. Evans.
31. French of the Third Semester. 4. Herman, Hootkins.
32. French of the Fourth Semester. 4. Patterson, Knudson.
71. Modern French Readings. 4. Jobin.
113*a*. Conversation. 1. Herman.
115*s*. Conversation, Advanced Course. 1. Koëlla.
153*s*. Advanced Composition and Practical Review of Grammar. *2*. Herman.
154*s*. Advanced Composition, Grammar, and Syntax. *2*. Koëlla.
159. French Pronunciation and Diction. 1. Talamon.
167. The History and Development of Poetry in France. *2*. Patterson.
175*s*. Contemporary French Drama. *2*. Talamon.
178*s*. The Romantic School in France. *2*. Knudson.
187*s*. French Literature of the Seventeenth Century. *2*. Patterson.
207*s*. Introduction to French Literature of the Middle Ages. *2*. Knudson.

(b) *Spanish*
2. Elementary Course. Continuation of Course 1. 4. Staubach.
31. Second-Year Spanish. 4. Mercado.
121*s*. Spanish-American Life. *2*. Mercado.
151*s*. Cervantes. *2*. Wagner.
157*s*. Spanish Lyric Poetry. *2*. Lincoln.
163*s*. The Spanish Short Story. *2*. Mercado.
165*s*. Spanish Grammar for Teachers. *2*. Lincoln.
203*s*. Drama of the Golden Age. Calderón. *2*. Lincoln.
211*s*. Old Spanish Literature. *Cantar de Mio Cid*. *2*. Wagner.

Russian

113*s*. Elementary Russian. *2*. Meader.
121*s*. Russian Literature in English. *2*. Meader.

Sociology

51*s*. Principles of Sociology. *2*. Angell, Holmes.
111. Rural Institutions. *2*. Holmes.
112. Rural Research. *2*. Holmes.
132*s*. Problems of Poverty and Dependency. *2*. Wood.

141*s*. Criminology. 2. Wood.
147. Introduction to Social Psychology. 2. ——.
153. Social Evolution. 2. Holmes.
154*s*. Modern Social Problems. 2. Carr.
163. Social Institutions. 2. Angell.
233. Principles of Social Case Work. 2. Valentine.
247. European Sociology. 2. ——.
251*s*. Principles of Sociology. 2. Carr.
259. Pro-Seminar in Sociological Research. 2. Carr.

Spanish

See Romance Languages, page 16.

Speech and General Linguistics

Speech

31*s*. The Elements of Speech. 2. McBurney.
32*s*. Public Speaking. 2. McBurney.
53*s*. Dramatic Production. 2. Windt.
131*s*. Advanced Public Speaking. 2. Densmore.
138*s*. Debate. 2. Densmore.
139*s*. Teaching and Coaching Debate. 2. Densmore.
144. Acting. 2. Stevens.
146*s*. Stagecraft. 2. Windt.
147. Advanced Dramatic Production. 2. Windt.
148. Advanced Dramatic Production. 2. Stevens.
181. Theory of Oral Reading. 2. Eich.
185*s*. Theory of Speech Composition and Debate. 2. McBurney.
190*s*. The Teaching of Speech. 2. O'Neill.
205. Studies in Reading and Dramatics. 2. Eich.
215. Seminar in Rhetoric and Oratory. 2. O'Neill.

General Linguistics

108*s*. Psychology of Language and Speech. 2. Meader, Pillsbury.
121. Introduction to Phonetics. 2. Muyskens, Shohara.
156*s*. Dynamic Phonetics. 2. Muyskens, Shohara.
206. Methods and Problems of Linguistic Science. Meader.
208. Seminar in Voice Science. 2. Muyskens.
210. Anatomy and Function of the Vocal Organs. 4. Strong.

Zoology

1. General Zoology (Principles of Animal Biology). 4. Woodward.
42. General Entomology. 4. Kuster.
51. Comparative Anatomy and Physiology of Vertebrates. 4. DeBruine.
55. Cytology, Histology, and Microtechnique. 4. Stiles.
104. Field and Laboratory Methods. 4. Woodhead.
152. Natural History of Vertebrates. 4. Hann.
173. Museum Methods. 3. Gaige, Thompson.

174. Advanced Museum Methods. GAIGE, THOMPSON.
231. Advanced Zoological Studies.
257. Investigations in Fisheries Biology. HUBBS, GREELEY.
261. Investigations in Ichthyology. HUBBS.
277. Investigations in Animal Physiology. WOODWARD.
283. Investigations in Vertebrate Genetics. FELDMAN.
295. Investigations in Mammalogy. DICE.

For courses at the Biological Station, see page 32.

COLLEGE OF ENGINEERING

HERBERT C. SADLER, *Dean*

The Summer Session of the College of Engineering extends from June 26 to August 18. The courses are designed for students of Engineering and for practicing engineers and teachers. The laboratory facilities are unusual for advanced technical instruction.

Architecture

See College of Architecture, page 24.

Chemical Engineering

2. Fuels and Furnaces. 3. MCCREADY.
3. Structure and Properties of Metals. 3. UPTHEGROVE.
9*a* or *b*. Unit Operations. 3. BAKER.
11. Chemical Engineering Thermodynamics. 3. MCCABE.
12. Special Problems. 3 to 8. MCCREADY.
13. Fluid Flow, Heat Flow, Evaporation, and Crystallization. 2. MCCABE.
15. Drying, Distillation, Extraction, and Gas Absorption. 2. BAKER.
18. Metallography of Non-Ferrous Metals. 2. UPTHEGROVE.
21. Special Problems. 3 to 8. THE STAFF.
29. Chemical Engineering Laboratory. 2. BADGER.
41. Advanced Ferrous Metallurgy. 3 to 8. UPTHEGROVE.
43. Evaporation. 3 to 8. BADGER.
46. Advanced Electrochemistry. 3 to 8. BAKER.
47. Advanced Non-Ferrous Metallurgy. 3 to 8. UPTHEGROVE.
50. Distillation. 3 to 8. BAKER.
51. Paper Manufacture. 3 to 8. MCCREADY.
53. Crystallization. 3 to 8. MCCABE.

Chemistry

See page 8.

Civil Engineering

2. Theory of Structures. 3. CISSEL.
7*c*. Arches. 2. CISSEL.
26. Specifications, Contracts, and Engineering Relations. 2. WORLEY.
27. Public Utility Problems. 2. WORLEY.
40. Highway Engineering. 2. MORRISON.
45. Highway Traffic Control. 2. MORRISON.
63. Civil Engineering Research. 2. WORLEY.
65. Structural Engineering Research. CISSEL.
66. Highway Engineering and Highway Transport Research. MORRISON.

Drawing

See Mechanism and Engineering Drawing, page 20;
also College of Architecture, page 24.

Electrical Engineering

2*a*. Direct and Alternating Current Apparatus and Circuits. 4. GAULT, HOLLAND.
3. Alternating Current Circuits. 4. HIGBIE.
4. Alternating Current Machinery. 4. BAILEY.
7. Illumination and Photometry. 2. HIGBIE.
9. Directed Research Problems.
11. Power Plants, Transmission, and Distribution. 5. LOVELL.
12. Electronics and Vacuum Tubes. 4. DOW.
17. Electromechanics. 4. STOUT.
18. Research Work in Electrical Engineering.
19. Study of Design—Power Plants. 2. LOVELL.
25. Advanced Principles of Electricity and Magnetism. 3. ATTWOOD.
26. Heaviside Operators. 2. STOUT.

Engineering Mechanics

1. Statics. 3. STEVENS.
2. Strength and Elasticity of Materials. 3. OLMSTED.
2*a*. Laboratory in Strength and Materials. 1. EVERETT.
3. Dynamics. 3. STEVENS.
4. Hydromechanics. 3. OLMSTED.
9. Advanced Strength of Materials. 3. ERIKSEN.
14. Stress Analysis in Machine Parts. 2. ERIKSEN.
21. History of Mechanics of Materials. 2. TIMOSHENKO.
25. Stability of Elastic Structures. 2. TIMOSHENKO.

English

6. Report Writing. 2. THORNTON.
24. The Professional Student and His Reading. 2. THORNTON.

French

See page 16.

Geography and Geology

See page 10.

German

See page 11.

Mathematics

See page 13.

Mechanical Engineering

2. Elements of Machine Design. 3. CALHOON.
3. Heat Engines. 4. KESSLER.
5. Thermodynamics. 3. KESSLER.
6. Theory of Machine Design. 4. CALHOON.
7. Mechanical Engineering Laboratory, I. 2. WATSON.
8. Mechanical Engineering Laboratory, II. 3. WATSON.
22. Research in the Mechanical Laboratory. 2 or 3. CALHOON, KESSLER, WATSON.

Mechanism and Engineering Drawing

1. Mechanical and Machine Drawing. 3. FINCH.
1*d*. Instrumental and Free-Hand Drawing. 1. MORLEY.
2. Descriptive Geometry. 3. GOULDING.
3. Mechanical, Geometrical, and Machine Drawing, and Free-Hand Sketching. 2. MORLEY.

Military Science and Tactics

Signal Corps, at Ford Sheridan.
Infantry, at Camp Custer.
Ordnance, at Aberdeen Proving Ground.

Shop Practice

1. Wood Working. 2. BONE.
3. Foundry. 4. GRENNAN.
3*a*. Advanced Foundry.
4. Machine Shop Practice. 4. BOSTON, GWIAZDOWSKI, PARKER.
4*a*. Advanced Machine Shop Practice.
5. Welding Processes. 2. TELFER.

Spanish

See page 16.

Surveying

Camp Davis, located near Jackson, Wyoming, in the valley of the Hoback River, seventy-five miles south of Yellowstone National Park, offers excellent facilities for surveying in a climate admirably

suited to field work. The courses offered there are open only to students who are properly prepared. Application for admission should be made to Director C. T. Johnston, Ann Arbor, Michigan. The 1933 Session is from June 26 to August 18.

At Camp Davis

3. Surveying. 8. Johnston, Carey, Bouchard, McFarlan, Young, Bleekman.
6. Surveying. 2 to 8. Johnston, Carey, Bouchard, McFarlan, Young, Bleekman.

At Ann Arbor

4. Surveying. 2. Mitchell.

MEDICAL SCHOOL

Frederick G. Novy, *Chairman of the Executive Committee*

The Summer Session of the Medical School extends from June 26 to August 4, except for Anatomy, Internal Medicine, Physiological Chemistry, Physiology, Roentgenology, and Surgery, in which subjects the instruction continues for eight weeks. While students may obtain credit for work done, they cannot thereby shorten their period of residence in the Medical School.

Anatomy

111. Laboratory Work in Human Anatomy. McCotter, Strong.
112. Histology, Embryology, and Anatomy of the Nervous System. Huber, Crosby, Thompson.
112*a*. Lectures and Laboratory Work in Histology and Embryology.
112*b*. Lectures and Laboratory Work in Anatomy of the Nervous System and the Special Senses.
112*c*. Mammalian and Human Embryology. Huber.
113D. Laboratory Work in Human Anatomy for Dental Students. McCotter, Strong.
114D. Lectures, Recitations, and Laboratory Work in Histology and Embryology for Dental Students. Huber.
115. Regional and Topographic Anatomy Based on Frozen Sections. McCotter.
206. Research Work in Histology, Embryology, and Anatomy of the Nervous System. Huber.

Bacteriology

113. Laboratory Work in Bacteriology. Novy.
114. Advanced Bacteriology. Hadley.
208. Research in Bacteriology. Novy, Hadley.

Dermatology and Syphilology

141. Senior Section in Dermatology and Syphilology. Belote.

Internal Medicine

121. Clinical Microscopy. Lashmet.
131. Junior Section in Medicine. Sturgis, Brown, Barker, Field, Curtis, Riecker.
137. Diseases of the Blood and Blood-Forming Organs. Isaacs.
141. Senior Section in Medicine. Sturgis, Brown, Barker, Field, Curtis, Riecker.

Neurology

141. Senior Section in Neurology. Waggoner.

Obstetrics and Gynecology

131. Junior Section in Obstetrics. Dalby, Winder.
141. Senior Section in Obstetrics and Gynecology. Miller, Kimball, Lamb.

Ophthalmology

Courses omitted during the Summer Session of 1933.

Otolaryngology

Courses omitted during the Summer Session of 1933.

Pathology

105. Pathological Technique. Weller, Wanstrom, Gordon.
121. Laboratory Course in Pathology. Wanstrom, Bugher, Gordon.
210. Pathology of the Female Genito-Urinary Organs. Weller, Wanstrom.
212. Special Pathology of Neoplasms. Weller.

Pediatrics

Courses omitted during the Summer Session of 1933.

Pharmacology, Materia Medica, and Therapeutics

121. Experimental Pharmacology. Nelson, Smith.
122. Biological Assay. Nelson, Smith.

Physiological Chemistry

110, 120. Physiological Chemistry—Lectures. Lewis.
121. Physiological Chemistry Laboratory. Christman, Eckstein.
201. The Proteins. Lewis.
204. The Lipids. Eckstein.
209. Research. Lewis, Christman, Eckstein.

Physiology

110, 120. Human Physiology: Lectures and Conferences. GESELL, NICHOLSON, BERNTHAL, HALDI, BRASSFIELD, MOYER, WINDER.
121. Human Physiology: Laboratory. GESELL, NICHOLSON, BERNTHAL, HALDI, BRASSFIELD, MOYER, WINDER.
201. Demonstration. GESELL.
211. Advanced Physiology. Special Problems. GESELL.
231. Research. GESELL.

Roentgenology

133*s*. Medical Roentgenology (Advanced Course). HODGES, PECK.

Surgery

131. Junior Section in Surgery. MADDOCK, POTTER.
133*s*. Surgical Anesthesia. TRAUTMAN.
141. Senior Section in Surgery. MADDOCK, POTTER, RANSOM.

LAW SCHOOL

HENRY M. BATES, *Dean*

The Summer Session of the Law School extends from June 20 to August 31, and is divided into two periods of five weeks each, so planned as to offer in any two successive summers all the prescribed courses of the first two years of the work leading to a degree. In addition, most of the elective courses will be given every second or third summer in such order as to meet the requirements of those who contemplate taking advantage of the Summer Sessions in working for the law degree.

Program of Courses for 1933

First-Year Subjects

Pleading. 4. Both terms. SUNDERLAND.
Torts. 4. Both terms. LEIDY.

Second- and Third-Year Subjects

Bills and Notes. 4. Both terms. AIGLER, GRISMORE.
Corporations. 4. Both terms. LATTIN.
Equity III. 2. First term. DAWSON.
Evidence. 4. Both terms. TRACY.
Landlord and Tenant. 2. Second term. JACOBS.
Rights in Land. 2. First term. SHARTEL.
Trial and Appellate Practice. 4. Both terms. BLUME.
Trusts. 4. Both terms. STASON.
Wills. 2. Second term. SHARTEL.

COLLEGE OF PHARMACY

EDWARD H. KRAUS, *Dean*

The Summer Session in the College of Pharmacy extends from June 26 to August 18. The courses are planned to meet the needs of (a) students who wish to shorten the time needed to complete the programs leading to the degrees in Pharmacy; (b) students who plan to enter the field of Food and Drug Analysis; (c) graduate students desiring to specialize in Pharmaceutical Chemistry.

Pharmaceutical Chemistry

1. Food Analysis. 3. GLOVER.
3. Pharmacopoeial Testing and Drug Assaying. 2. GLOVER.
4. Chemistry of Synthetic Drugs. 3. BLICKE.
5. Synthesis of Drugs. 2. BLICKE.
7. Research in Synthetic Drugs. BLICKE.

Pharmacy

1. Pharmaceutical and Chemical Calculations. 4. POWERS.
5. Prescription Study and Practice, including Incompatibilities. 5. POWERS.
6. A Study of the United States Pharmacopoeia and National Formulary. 4. POWERS.
7. Manufacturing Pharmacy. 4–8. POWERS.

SCHOOL OF DENTISTRY

MARCUS L. WARD, *Dean*

The School of Dentistry offers during the Summer Session those parts of the regular curriculum in dentistry that are taught in the College of Literature, Science, and the Arts and in the Medical School. All students desiring to pursue during the Summer Session courses that are to be recognized by this school should first consult with the Dean of the School of Dentistry.

COLLEGE OF ARCHITECTURE

EMIL LORCH, *Director*

The Summer Session of the College of Architecture extends from June 26 to August 18. The courses are designed for students of Architecture and include certain courses taken by students of Landscape Design, Decorative Design, and the curriculum for teachers of Art and Design in the School of Education. The course in Draw-

ing and Painting may also be elected by any University student having the proper preparation.

Architecture

1. Elements of Architecture. 3. BENNETT.
4. Study of the Orders. 3. BENNETT.
5, 6. Elementary Architectural Design. 4. BENNETT.
7, 8. Intermediate Architectural Design: Plan Problems. 6. BAILEY.
9, 10. Advanced Architectural Design. 6-8. BAILEY.
29. Elements of Office Practice. (Four weeks. Fee, $30.00.) MARSHALL, BRIGHAM.
30. Architectural Design. BAILEY.

Free-Hand Drawing and Painting

24*s*. Outdoor Drawing and Painting. 2. SLUSSER.
30*s*. Outdoor Painting. 2. SLUSSER.

SCHOOL OF EDUCATION

JAMES B. EDMONSON, *Dean*

The Summer Session in the School of Education is eight weeks in length, June 26 to August 18, except that a few shorter courses designed for students unable to attend the full session are given for four weeks. The four-week general courses will begin on July 10 and end August 4.

A large variety of undergraduate and graduate courses is offered, especially adapted to the needs of elementary and high school teachers, supervisors, principals, and superintendents. The regular instructional staff has been augmented by many prominent educators.

History and Principles of Education

A1. The History of Education in the United States. 2. JACKSON.
A102. Contemporary Education in Foreign Lands. 2. DAVIS.
A125. Philosophy of Education. 2. COURTIS.
A130*s*. Problems of the School as a Social Institution. 2. CONGDON.
A202. The History of Modern Education. 2. JACKSON.

Educational Administration and Supervision

B20. Principles of Teaching: Introduction to Secondary Education. 2. PURDOM.
B105*a*. The Construction of the Elementary School Curriculum. 2. BADER.
B120. Principles of Teaching in Secondary Schools: Advanced Course. 2. DUNHAM.
B121. The Junior High School. 2. DAVIS.
B122. The High School Curriculum. 2. CURTIS.

B124. Administration and Supervision of Secondary Schools. 2. Johnston, Congdon.
B131*s*. Organization and Administration of Extra-Curricular Activities in Junior and Senior High Schools. 2. Johnston.
B152. The Organization and Administration of Elementary Schools. (Four weeks.) 2. Goodykoontz.
B156. Supervision of the High School Subjects. 2. Schorling and others.
B185*s*. The Work of the Critic Teacher in Elementary Education. (Four weeks.) 2. Mackintosh.
B192. Introduction to Educational Research. 2. Olson, Good.
B195*s*. State and National Trends in Education. (Four weeks.) 2. Carr.
B225. Constitutional and Legal Basis of Public School Administration. 2. Edmonson.
B227*a*. Research in the Secondary School Curriculum. 2. Carrothers.
B228*a*. Research in Secondary School Administration. 2. Congdon.
B248. Principles of State School Administration. (Four weeks.) 2. Edmonson.
B249*s*. Principles of Educational Administration in Town and Consolidated Schools. (Four weeks.) 2. Carrothers.
B250. Principles of City School Administration. 2. Keeler.
B251. Supervision of Elementary School Instruction. 2. Courtis.
B255. Public School Relations. 2. Moehlman.
B258. School Buildings. 2. Moehlman.
B260. Seminar in School Administration and Supervision. 2. Moehlman.
B291*s*. Current Problems in Higher Education. (Four weeks.) 2. Yoakum.
B300*a*. Educational Research Problems. 2. Edmonson, Woody.

Educational Psychology, Mental Measurements, and Statistics

C1. Educational Psychology. 4. Good.
C102. Educational Psychology. 2. McClusky.
C107*a*. Psychology of the Elementary School Subjects. 2. Theisen.
C107*b*. Psychology of the Elementary School Subjects. 2. Keeler.
C115. Educational Diagnosis. 2. Theisen.
C120. The Mental Hygiene of Adolescence. 2. McClusky.
C130. Psychology and Education of Exceptional Children. 2. Keeler.
C149. Introduction to the Mathematical Analysis of Statistics, I. 2. Craig, Baten.
C150. Introduction to the Mathematical Analysis of Statistics, II. 2. Carver.
C175. Psychology of Child Development. 2. Greene.
C177. Education of Young Children. (Four weeks.) 2. Wilker.

C180. Problems of the Personnel Officer in the High School and College. 2. PURDOM.
C201. Advanced Educational Psychology: The Growth of the Self. 2. TROW.
C204. Advanced Educational Psychology: Psychology of Learning. 2. OLSON.
C212. The Measurement of Growth. 2. COURTIS.
C216*a*. Character Research. Seminar in Educational Psychology. 2. TROW.
C220. Seminar in the Mental Hygiene of Adolescence. 2. MCCLUSKY.
C230. Seminar in Child Development. 2. OLSON.
C280. Seminar in Personnel Problems of High School and College. 2. PURDOM.

Teaching of Special Subjects, including Demonstration Courses

Supplementary to the courses listed below, demonstration and observation courses in the University High School (Grades 7, 8, and 9) will be given in English, French, History, Latin, Science, Mathematics, Industrial Arts, and Fine Arts, which will be regarded as essential and integral parts of the Special Methods courses. Two hours credit will be granted for each of the Special Methods courses only when combined with the corresponding Demonstration course.

D101*a*. Teaching of Science in the Junior and Senior High School. 2. CURTIS.
D110. The Teaching of English. 2. THORPE.
D125*s*. The Teaching of History and Other Social Studies. 2. STEPHENSON.
D130*s*. The Teaching of Latin in the Secondary Schools. 2. DUNHAM.
D135*s*. The Teaching and Supervision of Junior and Senior High School Mathematics. 2. SCHORLING.
D155*s*. The Teaching of Literature in the Elementary School. 2. BADER.
D156*s*. The Teaching of Social Studies in the Elementary School. 2. STEPHENSON.
D160*s*. Teaching and Supervision of Industrial Arts in the Junior and Senior High School. 2. BYRN.
D201*s*. The Teaching of Science in Junior and Senior High Schools. 2. CURTIS.
D210*s*. Special Problems in the Teaching of English in Secondary Schools. 2. FRIES, THORPE.
D225*s*. Research and Investigational Problems in the Teaching of the Social Studies in the Junior and Senior High Schools. 2. STEPHENSON.
D230*s*. Special Problems in the Teaching of Latin in the Secondary School. 2. DUNHAM.

D235*s*. Special Problems in the Teaching of Mathematics in the Junior and Senior High Schools. *2*. SCHORLING.
D296. The Teaching of English in College. *2*. FRIES.

Vocational Education and Vocational Guidance

E100. Principles of Vocational Education. *2*. MURTLAND.
E101. Vocational Guidance. *2*. MYERS.
E107. The Technique of Securing and Using Vocational Information. (Four weeks.) MURTLAND.
E113. Administration and Supervision of Vocational Education. *2*. DIAMOND.
E151. Principles of Commercial Education. *2*. TRYTTEN.
E154. Methods of Teaching Shorthand and Related Subjects. *2*. TRYTTEN.
E201*s*. Seminar in Vocational Education and Vocational Guidance *2* to 4. MYERS.

Physical Education and School Health

(All courses run eight weeks unless otherwise indicated.)

(a) *Courses Open to Both Men and Women*

F5a. History of Physical Education. 1. WEBSTER.
F14. Scouting. 1. WEBSTER.
F15. Preventive and Corrective Physical Education. *2*. MAY.
F108*s*. Community Play and Recreation. *2*. WOODY, MITCHELL.
F211. Current Studies in the Administration of Physical Education. *2*. BELL.
F212. Methods of Instruction and Supervision of Physical Education. *2*. RUGEN.
F213. Curriculum Problems in Physical Education. *2*. SHARMAN.
F214. Current Studies of Athletics in Colleges and Universities. *2*. MITCHELL.
F215. Seminar in Physical Education. *2*. SHARMAN.

(b) *Activity Courses in Physical Education* (*Men*)

F41*a*. Football. *2*. KIPKE, CAPPON.
F43*b*. Basketball. *2*. CAPPON.
F44*a*. Track and Field Athletics. *2*. HOYT.
F45*b*. Rules and Officiating. 1. KIPKE.
F46*a*. Combative and Recreational Sports. *2*. JOHNSTONE.
F47*a*. School Programs in Physical Education for Junior and Senior High School Boys. 1. MAY.

(c) *Activity Courses in Physical Education* (*Women*)

F41, 42, 43. Sports: Swimming (Beginners, Intermediate), Golf, Tennis, Clogging, Tap Dancing, Activities for Junior and Senior High School. 1 to 5. CAMPBELL, HARTWIG, HALL.

(d) *Special Sport Sessions: June 20–June 30*

The Department of Physical Education for Women will offer two one-week sessions of intensive training in the following sports:

tennis, swimming, golf. For further information in regard to this work, address the Secretary, Barbour Gymnasium.

Hygiene and Public Health

101*s*. General Hygiene and Public Health. 2. SINAI.
C120. The Mental Hygiene of Adolescence. 2. MCCLUSKY.
G102*s*. Child Hygiene. 2. SUNDWALL.
FG107*s*. School Health Problems. 2. FORSYTHE.
FG108*s*. School Health Problems. 2. FORSYTHE.
FG115*s*. Methods and Materials in Health Teaching. 2. RUGEN.
G109*s*. Principles of Public Health Nursing. 2. BARTLETT.
G111*s*. Administration and Organization of Public Health Nursing. 2. BARTLETT.
G112*s*. Applied Nutrition. 2. MACKINNON.
203*s*. Applied Hygiene and Public Health. 2. SUNDWALL.
204*s*. Public Health Statistics. 2. GATES.
206*s*. Public Health Law and Administration. 2. SINAI.
208*s*. Rural Hygiene. 2. GATES.
209*s*. Industrial Hygiene. 2. SINK.
211*s*. Race Hygiene. 2. SINK.
212*s*. Epidemiology and Communicable Diseases. 2. SOLLER.
213*s*. Public Health Laboratory Methods. 2–6. YOUNG.

PUBLIC HEALTH INSTITUTE

JOHN SUNDWALL, *Chairman*

For those public health workers who are unable to attend the regular courses given during the Summer Session, a special public health institute has been arranged. The institute will be held Tuesday to Friday, June 27 to 30. Lectures covering a wide range of fields concerned with public health will be given. A fee of $3 will be charged for attendance upon all or part of the institute.

SCHOOL OF BUSINESS ADMINISTRATION

CLARE E. GRIFFIN, *Dean*

The Summer Session of the School of Business Administration, extending from June 26 to August 18, offers most of the required first-year courses. This makes it possible for students who have taken a substantial part of the first-year work in Business Administration to complete requirements for admission to regular second-year standing before the beginning of the academic session in September. The degree of Master of Business Administration is conferred upon the completion of a two-year program in the School. Admission requirements: bachelor's degree or admission to combined curriculum. For details and exceptions see regular announcement of the School.

101*s*. Principles of Organization and Production. 2. JAMISON.
102*s*. Principles of Personnel. 2. JAMISON.
151*s*. Marketing Principles, I. 2. MCELROY.

152*s*. Marketing Principles, II. 2. McElroy.
161*s*. Financial Principles, I. 2. Waterman.
162*s*. Financial Principles, II. 2. Waterman.
205*s*. Business Law, I. 2. Wolaver.

SCHOOL OF FORESTRY AND CONSERVATION

Samuel T. Dana, *Dean*

A camp for practical instruction in basic field courses is maintained in Alger County in the Upper Peninsula of Michigan, June 26 to August 18. Attendance at this camp is compulsory for all professional students in the School and preferably constitutes their first work in the School. Qualified students are therefore urged to attend the camp the summer following their sophomore year in college. Applications should be made to Dean Samuel T. Dana, Ann Arbor.

115. Forest Mensuration. 4. Craig.
121. Forest Improvements. 2. Allen.
123. Fire Prevention and Control. 2. Allen.

SCHOOL OF MUSIC

Charles A. Sink, *President*

The Summer Session in the School of Music extends from June 26 to August 18. Courses are offered to meet the needs of (a) students who wish to shorten the time necessary to complete courses leading to the degrees in Music; (b) students in other schools and colleges who wish to study music for purely cultural purposes, and who wish to apply credit earned for such study towards the A.B. or B.S. degree; (c) professional musicians, supervisors of music in public schools, and private teachers who wish to broaden their training in a specific subject or department, whether or not they are candidates for an advanced degree. For credit in other colleges and schools, see sections on Music in the Complete Announcement.

Theory and Literature of Music

B1. Theory of Music. 4. Cuyler, Crandall, Burnett.
B2. Theory of Music. 4. Cuyler, Crandall, Burnett.
B32. Harmony. 2. Stahl.
B33. Dictation and Sight Singing. 2. Cuyler, Crandall, Burnett.
B45*s*. University Symphony Orchestra. 1. Mattern.
B102. Counterpoint. 2. Stahl.
B107. Elementary Conducting. 2. Mattern, Crandall.
B111. The Symphony. 2. Moore.
B151. Choral Literature. 2. Moore.
B157. Chamber Music. 2. Pick.
B161. Analysis of Form. 2. Stahl.
B162. Analysis of Form. 2. Cuyler.

B163. Advanced Conducting. 2. MATTERN.
B176. Contrapuntal Dictation and Ear Training. 2. CUYLER.
B201. Fugue. 2. STAHL.
B203. Advanced Orchestration. 1 or 2. CUYLER.
B206. Seminar. 2. MOORE.

Music Education

C101. The Teaching and Supervision of Vocal Music in Elementary Schools. 2. HIGBEE.
C103. The Teaching and Supervision of Vocal Music in High Schools. 2. HIGBEE.
C105. Directed Teaching in Vocal Music. ——.
C111*s*. Instrumental Methods for Elementary Schools. 1. MATTERN.
C113*s*. Instrumental Methods for High Schools. 1. MATTERN.
C115*s*. Directed Teaching of Instrumental Music in Schools. 1 or 2. MATTERN.
C117. The Teaching of Voice in Classes in High Schools. 2. ——.
C201. Special Problems in Organization of High School Music Curricula. 2. MATTERN.
C203. Problems in Teaching Written Theory in High Schools and Junior Colleges. 2. CUYLER, STAHL.

Applied Music

I. *Individual Instruction.* (Additional fee charged)
Piano. 1 or 2. BRINKMAN, SCHOENFELD, STOCKWELL.
Voice. 1 or 2. HACKETT, HAMILTON.
Organ. 1 or 2. CHRISTIAN.
Violin and Viola. 1 or 2. BESEKIRSKY.
Violoncello. 1 or 2. PICK.
Contrabass. 1 or 2. PFOHL.
Wood and Brass Wind Instruments. 1 or 2. FALCONE, SLOCUM, THEBAUD, FULGHUM, COX, PFOHL.

II. *Class Instruction.*
Voice 1. 2. HAMILTON.
Voice 31. 2. HAMILTON.
Violin 1. 2. ——.
Violin 31. 2. BESEKIRSKY.
Viola 1. 2. ——.
'Cello 1. 2. PICK.
'Cello 31. 2. PICK.
Flute 1. 2. SLOCUM.
Oboe 1. 2. THEBAUD.
Clarinet 1. 2. FALCONE.
Clarinet 31. 2. FALCONE.
Bassoon 1. 2. THEBAUD.
Horn 1. 2. COX.
Cornet or Trumpet 1. 2. FULGHUM.
Trombone 1. 2. PFOHL.

For detailed information concerning music fees for individual instruction, instrument rentals, etc., see Summer Session Announcement of the School of Music, obtainable from Mr. Charles A. Sink, President, School of Music.

BIOLOGICAL STATION

GEORGE R. LARUE, *Director*

The Biological Station, located on the south shore of Douglas Lake in Cheboygan County, is conducted as a camp, June 26 to August 19. The work is chiefly field work. Excellent facilities are offered in several phases of botany and zoology for research either by independent investigators or by graduate students. As only a limited number of students can be accommodated, application should be made at the earliest possible date to Director George R. LaRue, Ann Arbor, Michigan. A special bulletin will be mailed upon request.

Botany

43. Taxonomy of the Fresh-Water Algae. 2. NICHOLS.
44. Taxonomy of the Bryophytes. 2. NICHOLS.
45. Systematic Botany. 2. EHLERS.
46. Plant Anatomy. 4. C. D. LARUE.
166. Plant Ecology. 4. GATES.
167. Aquatic Flowering Plants. 2. EHLERS.
169. Ecological Plant Anatomy. 2. C. D. LARUE.
285. Special Work in Botany. 2, 4, 6, or 8. NICHOLS, GATES, EHLERS, C. D. LARUE.
286, 287, 288, 289. Research in Botany. Special Fields.

Zoology

49. Entomology. 4. HUNGERFORD.
59. Ornithology. 2. BLANCHARD.
119. Advanced Ornithology. 2. BLANCHARD.
139. Ichthyology. 2. CREASER.
159. Natural History of Invertebrates. 4. EGGLETON.
169. Herpetology and Mammalogy. 2. CREASER.
179. Limnology. 4. WELCH, EGGLETON.
189. Helminthology. 4. CORT, THOMAS.
231. Advanced Zoological Studies. 2, 4, 6, or 8. G. R. LARUE, WELCH, CORT, HUNGERFORD, CREASER, BLANCHARD, THOMAS, EGGLETON.
261, 263, 265, 275, 291, 293, 295. Research in Zoology. Special Fields.

The Complete Announcement of the Summer Session, giving a full description of each course, may be obtained from LOUIS M. EICH, Secretary of the Summer Session, Ann Arbor, Michigan.